

DRY-WALL GARDENS

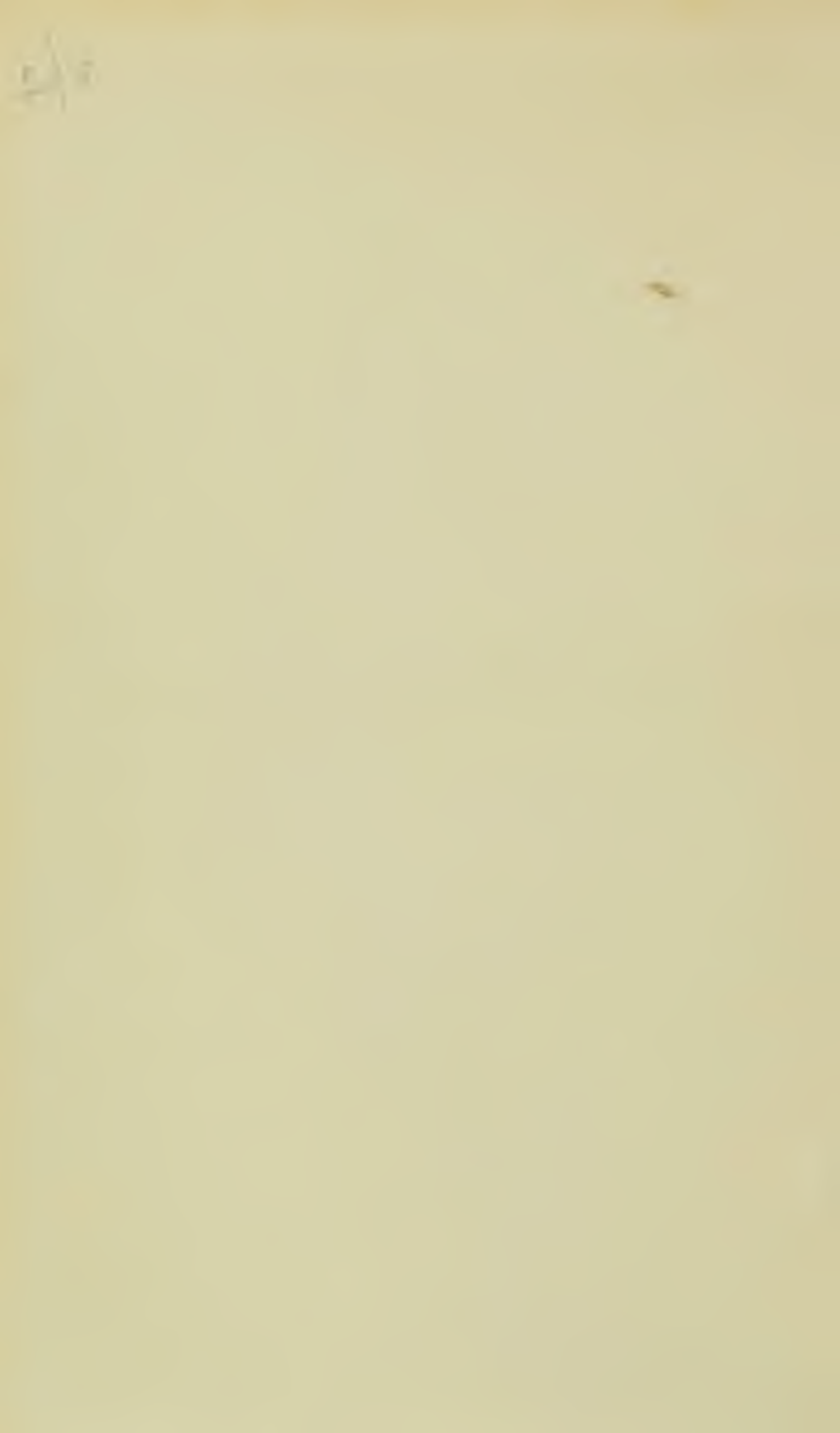


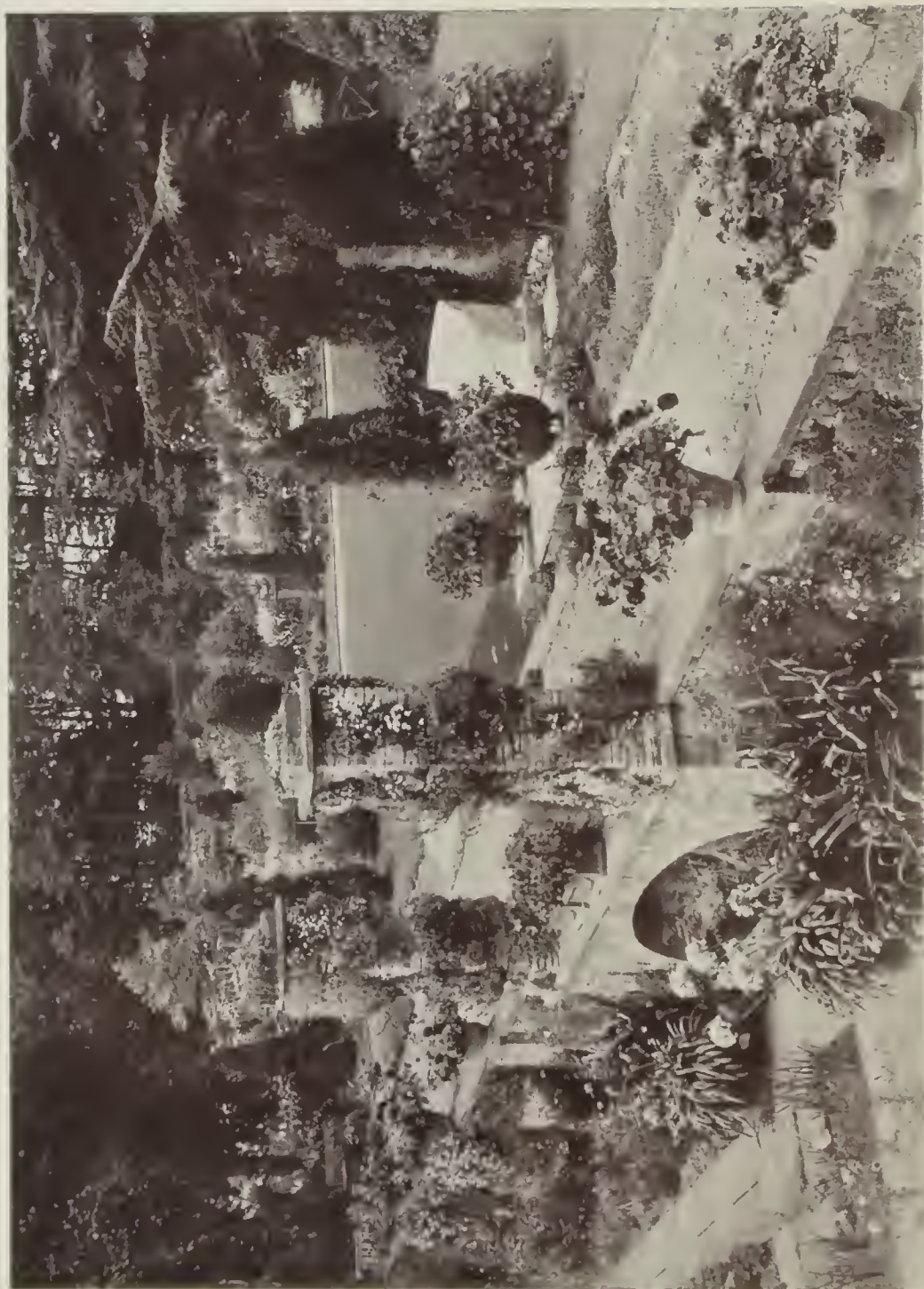
THOMAS SMITH



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THE BOOK OF DRY-WALL GARDENS





A GARDEN SCENE AT WALMSGATE HALL. LINCS. DRY-WALL FEATURES IN BLOOM.

THE BOOK OF
DRY-WALL GARDENS

BY
THOMAS SMITH

ILLUSTRATED WITH PHOTOGRAPHS TAKEN BY THE AUTHOR

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DEDICATED
TO MY FATHER
WHO MADE ME
A GARDENER

PREFACE

WHEN, as a boy, I began to evince an interest in gardening, the frequency with which I heard the word "rockery" mentioned where conversation turned upon gardening matters left an impression that such structures were represented in every garden. I began to take note of these and their method of arrangement, but I confess the only clear definition these efforts conveyed was that they differed little from other parts of the garden, save that rocks or stones were liberally represented, and seemed to be given as much prominence as possible. Later, in moving about the country, I came across instances where an intelligent interest was taken in the welfare of mountain plants, and I learned that the mission of the rock or stone was held in subordination to the vegetation, and wherever these conditions prevailed the rock garden became an active centre of attraction, often a most notable feature in the garden scheme.

Anyone able to conjure up the results that followed the pursuit of these different ideas to their logical conclusion can well conceive how the rock garden emerged from the obscurity of thirty years ago, till to-day it transcends in importance all other branches of open-air gardening. The dry-wall, as I have developed it in the following pages, is in some respects a transition stage between the incompetence of the

old-time rockery and the realistic representation that the true rock garden of to-day seeks to convey ; it is a simple, homely means of giving expression to the greatest variety of Alpine and rock plants ; it enables us to overcome endless difficulties in planning our gardens and to impress the hall-mark of delightful beauty with intelligent cultivation where at present we are often beset with doubt and at a loss how best to proceed. Then the dry-wall is useful, if only to enable us to grow plants that we can dispense with in the rock garden, in this way it offers healthy expansion to our collections.

The illustrations and diagrams are a feature of the book, and will generally be found to bear directly upon the text. It is hoped in this way that they will serve a double purpose, in rendering it more clear, and also, may prove suggestive in conveying an approximate idea where a dry-wall of like nature is contemplated.

The actual photographs and drawings from which these reproductions have been taken are all my own work, and with few exceptions they illustrate wall gardens that have been built and planted by myself, or under my supervision. With the exception of four, none have been published previously. The copyright rights of those excepted is shared equally, as regards number, by the proprietors of *The Gardener's Chronicle* and *The Gardener's Magazine*, to whose courtesy I am indebted for their inclusion here.

THOS. SMITH.

Coombe Court Gardens,
Kingston Hill.

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CHAPTER I

THE DRY-WALL AND ITS ORIGIN

ONE of the healthiest signs of present-day gardening is the growing attention concentrated upon plants that are hardy in the open air ; with those of Alpine nature and stature this interest in numerous instances amounts almost to enthusiasm, for one can hardly come under their influence without surrendering to their fascination. This extended cultivation has awakened a deep and personal interest in their welfare ; it has also forced into prominence and developed the methods of construction, as applied to rock garden building, and it has brought into much clearer perspective that aspect of rock gardening, wherein its relationship and affinity with the other parts of the garden must have recognition and consideration.

It is characteristic of the enthusiastic cultivator of rock plants that failing the orthodox system to display our treasures, we cast about for a fitting substitute. One can readily conceive a garden that cannot surrender the necessary space for an elaborate constructed rock garden, yet, so situated that without much disarrangement of existing features, it would be

easy to introduce dry-walls. Considered simply as a means of growing rock plants, we have to remember that numbers of our best Alpines, especially those of a tomentose or woolly nature, can only be maintained in health with difficulty and some ingenuity in the ordinary rock garden: the hairy and downy nature of the leaves hold moisture so readily that in anything approaching level conditions this ultimately spells disaster to them. For this reason alone the dry-wall claims our attention; affording a safe means of combating these evils, it also offers an effective way of displaying the flowers in masses, while those small and dainty members we so fondly cherish can here be placed at easy levels where the eye can catch them, and so enable us to appreciate whatever of merit we associate with each.

In no sense can the dry-wall be said to compete with the rock garden; rather will it augment this, for while the former may, and often does, carry the imprint of unrestrained extravagance, the latter will serve its purpose most usefully and attain its highest degree of beauty when conceived upon simple lines and treated as a homely affair.

The relationship between the rock garden and dry-wall is, however, much more intimate than a casual observer might suppose. In the rock garden each successive rock-layer or stratum is separated from its neighbour by pockets, ledges, or banks of soil, varying from a few inches in width to as many feet, whereas

in the dry-wall we find the courses that correspond to these rocky strata lie so close above each other that they form an almost vertical face. Between the courses and in the joints we place the thinnest possible layer of soil, into which the plants must anchor themselves and from whence they must draw support and nourishment. It is thus seen that the idea of a wall garden or dry-wall, as it is styled, is but a modified form of the rock garden, inasmuch as the successive layers of rock which in the latter are larger and more or less widely separated and spread over a greater surface in irregular masses, are in the dry-wall brought into closest contact, lying directly above each other, much in the way of an ordinary wall. Mortar being entirely dispensed with, its place is taken by soil. To sum up, we may note that successful wall gardens stimulate initiative, create enthusiasm, widen our knowledge of plant life, and impart an intimacy with the laws of plant structure, and grouping and colour combinations. Plants we regard elsewhere as common, by this means win greater regard; applied in the case of rare and minute kinds, that are frequently both difficult to cultivate and locate in the ordinary rock garden, but can here be leisurely enjoyed, and their exquisite beauty of outline and colour, that is but rarely suspected or impossible to develop under less favourable conditions, is here disclosed in full measure, and displayed as effectively as we can ever hope to attain with plants in captivity.

ORIGIN OF DRY-WALLS

It is interesting and also instructive to observe that one of the most virile branches of gardening, one that for years has lain outside the run of ordinary text-books, should trace its inception in decay. That in which an earlier generation rejoiced and found pleasure by reason of its architectural strength and beauty, becomes with the first trace of neglect and decay the starting point from whence another type arises ; the decaying stone and crumbling mortar that weakens joints and makes the courses gape, invite and afford substratum from whence living plants can draw sustenance. Hence dilapidated works of ancient raising have, in addition to their legitimate features, a lovelier beauty superimposed by the wayward hand of Nature. We might even trace the origin of dry-walls a step further, back indeed to those native walls of adamant rock that form the foundation and superstructure of our wildest mountains. Time and again we come across wall-faces of almost perpendicular steepness, broken at rare intervals with narrow crevices and joints, into which some child of the mountain has riveted itself and from whence no amount of persuasion will dislodge it intact ; its presence there can only be explained by supposing the introduction due to natural agencies, such as time alone can accomplish. This, though the earliest type of all wall gardens, is less familiar than that previously noted, because not so

easy of access. Familiar instances of the first-named are usually to be found in old moat walls, in the ruins of ancient keeps and castles, while the old-world character of many gardens suggest that homely instances may often be found without going far afield.

All old walls, on inspection, invariably reveal vegetation, springing most frequently from the upper courses, although buttressed walls and those having projecting plinths will sometimes carry plants not far removed from ground level. I can recall such an example from among my early recollections of gardens. An old walled-in-garden in Perthshire, built four-square, had one wall, with a north aspect, planted with currants and gooseberries trained in cordon fashion; beside the legitimate occupants appeared a tiny ever-green plant that clothed the greater part of the wall-face; for the most part it occupied the higher courses, but in some parts it extended to the half-way line; its narrow leaves were always most conspicuous in winter, when the fruit trees were bare; in early summer a glow of rosy-purple overspread the wall and this commonplace subject became a thing of singular beauty. Years afterwards I recognized in *Erinus alpinus* the charming acquaintance of boyhood, and I still look upon it as strikingly typical of all that is Alpine, in stature, persistency, and beauty. Nor is this an isolated instance of the affinity that exists in Nature between plants and walls. Those who have

ever travelled by the L. & S.W. Railway to Guildford, must have observed the wild riot of colour that breaks in summer from the cliff-face, close beside the railway station there. Rooted into the solid chalk is a wide screen of *Centranthus ruber*, the common and familiar Red Valerian. Another instance I recall, occurs in the railway cutting leading to the military station of Bulford, in Wilts. Here the steep sides of the ground have been supported by a sloping wall, into which quantities of *Sedum*, Wallflower, Foxgloves and *Linaria* have established themselves, providing a delightful and unexpected surprise as the traveller first comes upon them. Then again, the picturesque lanes that occur in North Devon and the borders of Somerset present a rich feast of natural dry-walling. In some parts the hedges are on raised banks which are supported by retaining walls; here through the process of time native plants of a varied character have become established; *Cotyledon umbilicus* luxuriates, in company with a numerous array of ferns, represented in all stages of development, to such degree, that large tracts of the wall are quite hidden by this native growth.

In these native examples there is ever present means of supplying nourishment to plant life as well as provision for ensuring an adequate supply of moisture, upon which the plant's continued activity depends. It is both interesting and instructive to follow for a moment the agencies or means adopted in order to

PLATE I.



ANDROSACE SARMENTOSA IN A SUNNY DRY-WALL.

PLATE II.



A DRY-WALL IN COURSE OF CONSTRUCTION

PLATE III.



A DRY-WALL. RECENTLY BUILT. THE STONES ARE LAID TO FORM PROJECTING LEDGES.

secure this end. In those primitive mountain types, where huge rock masses are rifted by narrow fissures, we find that when silted up, the substratum consists of finest sand particles mixed in greater or less degree with organic humus. This can only have entered in either of two ways, by the agency of rain and snow, when it is washed down from the higher levels of the mountain ; or, being wind borne, it is driven into the crevice and finds lodgment. In this way also the presence of plant life is accounted for, the seed being contained in the detritus, germinates, grows and becomes established.

In the case of masonry, old walls offer a somewhat similar analogy, for the crumbling mortar has been acted upon by frost and rain in a similar way. Wind and sometimes birds may be the means of introducing seed, which in this case may include garden plants as well as those native to our woodlands and meadows. These instances illustrate what I may call the bare minimum of substratum upon which terrestrial plant life can subsist. Yet it is frequently under such unpromising conditions that Alpines exhibit their characteristic tenacity in the highest degree.

In the case of walls raised by human agency, even where their primary purpose may have had little relation to plants, the substratum is usually of more kindly nature. This we endeavour to express with even greater freedom in the true dry-wall, and it is always strikingly apparent where it assumes the

character of a retaining wall. Here in place of such impervious building materials as cement and lime mortar, we substitute soil. Hence it is always possible to provide an adequate rooting medium, and to vary it to any degree, while the other essential factor, namely moisture, is correspondingly increased both in certainty and volume.

When we judge these prototypes by the evidence of success obtained, we must not lose sight of the fact that while seed of many diverse forms find lodgment in these natural crevices, only comparatively few kinds maintain themselves with unimpaired vigour. This is undoubtedly largely due to the stern decision invoked, wherein the weakling and those less favourably placed become displaced by more aggressive kinds. Hence the prevalence of some definite plant in natural walls need not imply its surpassing excellence for the object under review, and *vice versa*, the absence of indigenous subjects that otherwise flourish in close proximity, yet eschew these peculiar situations, does not warrant the withholding them from walls of our own raising. Where every condition is favourable to plant development the cultivator can exercise a watchful and wise direction over the aspirations of each legitimate occupant, by suppressing tendencies of overbearing in subjects of rampant growth, while fostering those of backward or fragile nature. While the dry-wall raised under artificial conditions has this in common with the natural type, that it furnishes a

congenial rooting medium and safeguards the supply of moisture, experience dictates certain principles whereby these ends are most economically attained, while it also provides a definite guarantee of stability. Not only is this expressed in the method of raising the wall, but it extends even to the laying of the stones, and although its rigid observance is not so essential, in so far as the actual structure is concerned, it may yet with advantage be extended to the plants themselves with material benefits of no mean order.

Dry-walls, like other structures of like nature, must be stable enough to withstand the test of years ; this can only be secured where each stone is made thoroughly rigid as building proceeds. Then in the case of retaining walls, that is walls supporting a mass behind, provision must be made for the speedy removal of excessive moisture, so that surface water may not find lodgment and force the wall outward. This is most readily secured by introducing land drains laid through the footing into the ground behind. Instances occur where the dry-wall is of some considerable depth, or it may be the soil is of a particularly retentive character, and water trouble is clearly apparent. Then it is almost imperative to introduce a false wall built of cement mortar, a yard or more behind, in order to carry the main pressure of the ground ; the drain pipes must be continued through the footings of this and with some coarse rubble carried up the inner face of the false wall. Then no danger of

subsidence from any cause need be apprehended. All practical purposes will be served if the false wall is discontinued two feet below ground level, as any pressure above this can readily be taken up by the dry-wall itself. In well-drained soils, such as those of a sandy or chalky nature, these elaborate precautions are rarely necessary, hence the relative cost of the initial work is greatly in favour of the latter. An alternative scheme that suggests itself, one that I followed with success ten years ago, is to introduce pilasters, at regular intervals, built of cement mortar. These were placed some twelve to sixteen feet apart, while the intervals between were filled in by dry-walling. One end of the structure had to take up the pressure of a depth of five feet of newly moved soil, and this the pilasters carried out without apparent subsidence, as the wall still retains its original position. A photograph of this wall appears as frontispiece to this book.

Experience also dictates a departure from the true vertical, in other words, the dry-wall should have a definite "batter," or set back, so that when finished it presents a sloping face; incidentally this adds to its stability. The main purpose, however, is to render access easy to all extraneous moisture coming into contact with the wall, and to facilitate its passing to the roots of the plants within. To make this process more certain, each stone when being bedded into place receives a definite tip behind, as shown in Figs. IV. and V.

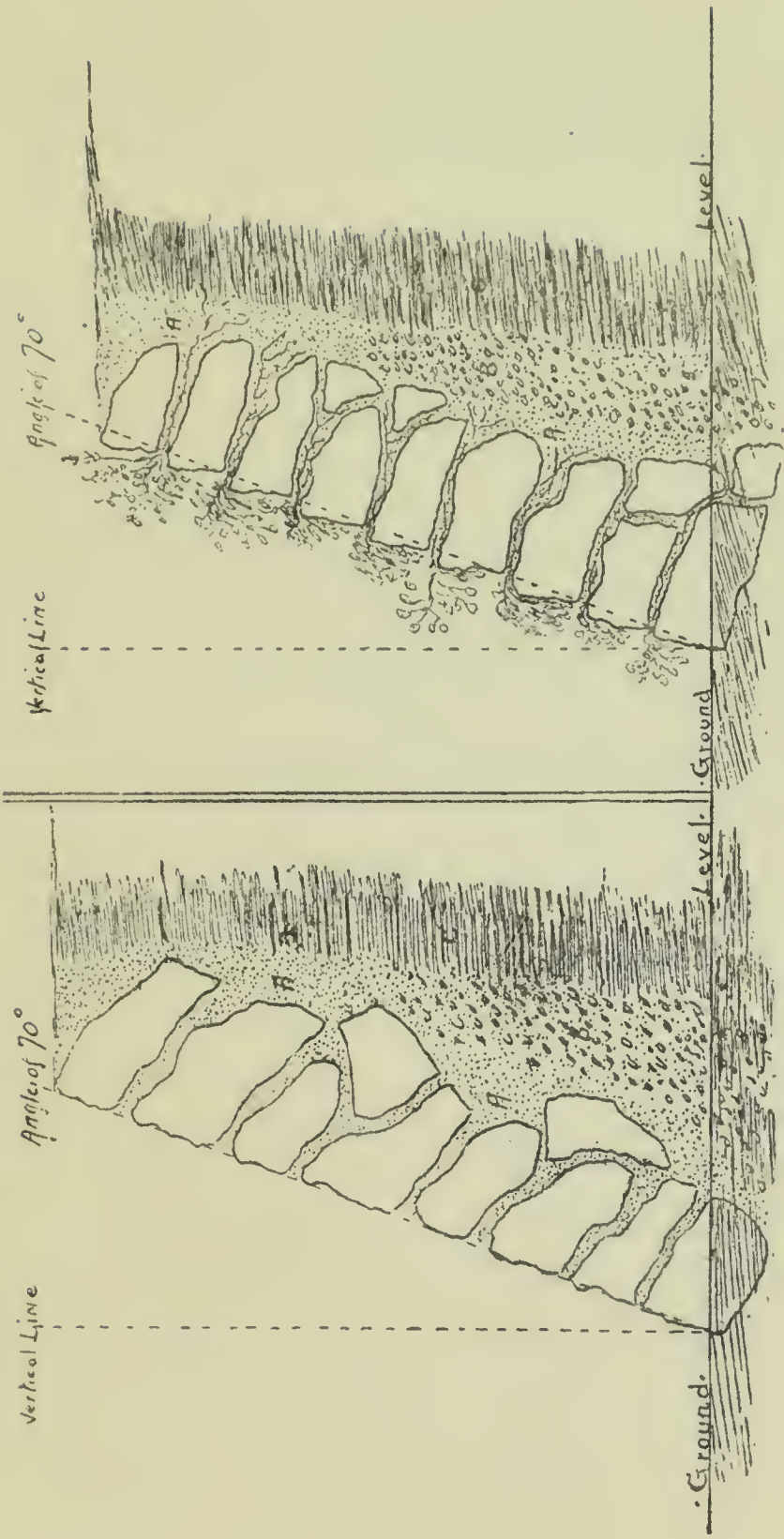


PLATE IV.

SECTION—DRY-WALL, SHOWING STRAIGHT FACE
AND HOW EACH STONE DIPS BEHIND.

A. Prepared soil.

B. Rough drainage material.

C. Natural soil.

PLATE V.

SECTION—DRY-WALL, SHOWING SET BACK TO
EACH STONE, FORMING LEDGES.

A. Prepared soil.

B. Rough drainage material.

C. Natural soil.

This ensures the innermost edge being lowest ; hence water will naturally percolate behind and even a light shower of rain in summer will be beneficial to the wall occupants.

CHAPTER II

BUILDING MATERIALS—NATURAL AND ARTIFICIAL

WITH some diffidence I enter upon the consideration of building material, for intuitively there arises that stumbling block of so many modest yet earnest gardens, the brick-burr. Its repulsiveness almost appears to communicate itself to those who use it most, for it is rare to find it unveiled to the full light of day. Generally it is improvised to hold up some steep bank that terminates too abruptly upon forecourt or lawn. Within its uninviting depths can still be traced the derelict remains of what had once been good wall plants, themselves now ousted and their positions usurped by Periwinkle and St. John's Wort. While the brick-burr, as a type of building material, should be avoided whenever possible, both by reason of its artificial nature and lack of harmony with plants, its evils are not altogether inherent, for if the principles of building are fully grasped and put into practice, together with a selection of suitable plants, enough can be done with this unpromising material to remove any aspersion of ridicule from our efforts in gardening.

Well-burnt bricks offer greater latitude to the aspirant in dry-wall building, their composite character does not appear to militate against the free development of plants, and whatever drawbacks they possess are chiefly those of colour and conformity, the former yielding invidious comparison with many flowers, while the even size and shape make it difficult to combine stability with adequate provision for the natural expansion of plant growth. There are two ways in which brick may be laid in dry-walling (see Fig. VI.) In both sketches the narrow end is exposed, but whereas by one method a series of narrow oblongs is the effect seen in elevation—this result being secured by laying the bricks flat—in the alternative system the bricks are laid on the sharp angle edge, giving an effect in elevation of a series of oblique diamond-shaped rows. I have seen quite satisfactory results obtained where the last-named method was followed, for it is not difficult to appreciate the ultimate strength that results from the interlocking of the courses as the wall settles and becomes established, but I suspect that concurrent with this process there is unavoidable shrinkage of the joints and courses wherein the plants grow, so that eventually those of a ligneous character will be choked by this pressure, just when the wall reaches an effective stage. In this method of flat-bedding this danger is greatly reduced and the stability of the wall is not unduly strained. Scrupulous care must be observed in laying each course firmly, maintaining a definite

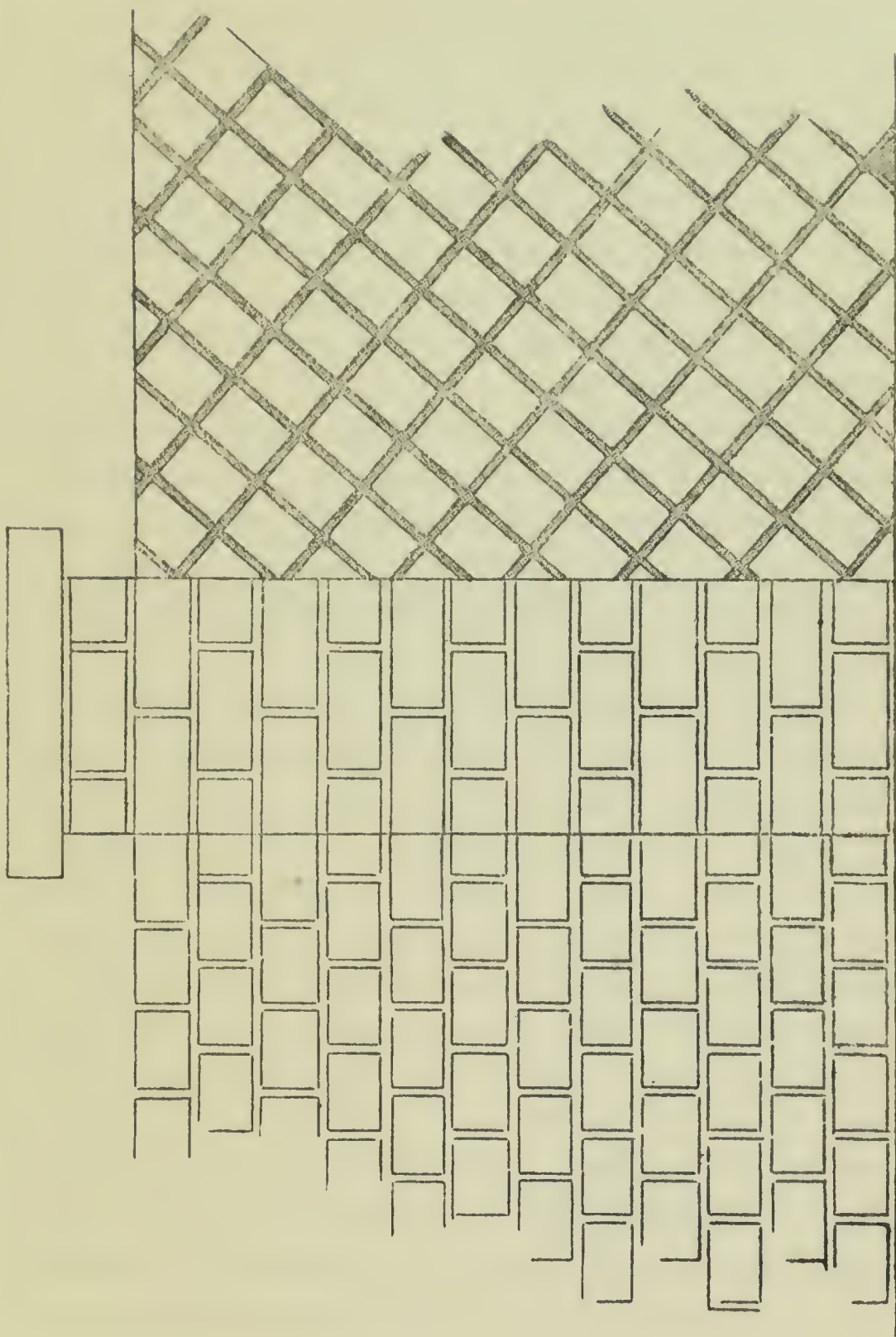


PLATE VI.

ELEVATION OF DRY-WALL, SHOWING ALTERNATIVE METHODS OF BUILDING WITH BRICK.

Parallel arrangement—Bricks laid flat.

Diagonal arrangement—Bricks laid on angle edge.

set-back to each brick, so that the end bedded in the wall becomes distinctly lower than that exposed. All joints are carefully packed with soil and the ground level behind carried up as the work of building proceeds. The layer of soil on which each course of brick is laid need not exceed one-half to three-quarters of an inch in depth, while the joints between the bricks may vary from one-half to one-and-a-half inches wide.

Of artificial building materials formed of cement concrete, it is next to impossible to find any merit as dry-wall agents ; numerous examples of this material have come under my notice, but they all represent the extreme limit wherein the structural has been allowed to supersede the practical.

One experience I had with such material was a garden wall, rigid as rock, the face faultlessly perfect except where it was perforated with copious pockets, in front of which projected cunningly contrived ledges to capture and convey moisture to the plants behind.* In spite of this alluring ingenuity, backed by enthusiastic skill, the plants simply refused to progress. It required some years of strenuous toil and considerable outlay in plants before the owner recognized how impossible such a structure was for the object she had in view. The only practical way to use cement concrete in dry-walling is to mould it into blocks, but when the expense of labour and material is totalled

* Part of a wall like that described is shown in Plate XXII.

up, its cost is practically that of good stone, without the natural advantages inherent to the latter.

By having recourse to natural stone we introduce a factor of moment into our dry-wall gardens, namely the pictorial affinity that may be said to exist naturally between living vegetation and weathered rock. Not all rock, but the prevalent types that are most widely distributed, when exposed to the weather, become softened around the edges, while the surface gradually takes on another aspect: silver-grey encrustations and fretted stems of green vegetate, where the environment is congenial, and this living veneer of moss and lichen add beauty and interest that are doubly welcome because spontaneous. Unlike the rock-garden, where huge masses of rock have special value, the dry-wall gives the best effect when stone in moderate size is used, and for this work rocks that show distinct stratification ought to be preferred, not only because they are easy to lay, but they generally work out economical in the matter of cost.

Of the natural stratified rocks, limestone claims first attention, not only on account of its picturesque character, but its sympathetic nature accords well with plants. In itself it constitutes a plant food of high value, while its capacity for absorbing moisture should not be overlooked. The geological group of rocks that occur all over these islands contain limestone rocks in several forms. All, however, are not adapted for dry-walls, as a few are of too perishable a nature

and crumble to pieces on exposure to frost and rain. Suitable building material is readily obtained from the inferior and great oolites that form the Cotswolds, and some of the hills throughout Somerset and Lincolnshire. The Purbeck limestone from Dorsetshire is another good form, while the carboniferous or mountain limestone which is developed as vast masses of pure limestone in Derbyshire, and can be traced through Lancashire, Yorkshire and Northumberland, swelling out again in the Mendips and along one edge of the Forest of Dean, and yet again in South Wales, is excellent material for walls. The fine scenery of the "Peak" district, and the Yorkshire mountains near Ingleborough, are due to carboniferous limestone flanked by rough moorlands formed of millstone grit. A distinct form of limestone is that known as magnesian. This is largely in request for burning, the product being shell-lime, the active constituent in building mortar. Good building samples can frequently be had, but its characteristic whiteness, which it always retains, makes it undesirable for wall gardens, the glaring contrast being much too harsh for the colour harmonies we attempt with flowers.

Sandstones rival limestones as material for building dry-walls, and are even more widely distributed, varying considerably in colour from the dark red purple of the old red sandstone that is common over great areas in England and Scotland, and which is regarded as one of the best for our purpose, to the bright red of



A WALL GARDEN WITH ITS WEALTH OF SUMMER FLOWERS.

PLATE VIIIa.



DIANTHUS, ARMERIA, AND LINUM ON THE WALL-TOP.

PLATE VIIIb.



ERINUS ALPINUS.

the new red sandstone, which is also of fairly frequent occurrence. Yellow and white sandstones are also common, and although their newness is only too apparent when first quarried, they soon become mellowed on exposure. Sandstones call for discrimination quite as much as limestones, for some are naturally soft when first quarried, increasing in hardness on exposure, whilst others seemingly hard, when subjected to the action of the weather crumble to powder with the least handling, or shale off in flakes after a thaw. Hence, in choosing stone, it is safest to seek advice from those familiar with its character under conditions similar to those we intend to reproduce.

Granite and other crystalline rocks are too hard and impervious for plants to take kindly to them, and their absorbent qualities are not equal to any of those already reviewed; in addition to this, their shape is most irregular and militates against their easy use in wall building. It will thus be seen that natural stone of a suitable character can nearly always be had without great difficulty, either in the same county or those nearest adjacent to us. Sometimes stone can be procured locally that cannot be said to approximate to any of those I have described. This, however, is immaterial provided it embodies the principles I have sought to establish as essential in dry-wall construction.

A dry-wall that is a prominent feature in the garden should obviously have the best stone procurable, more so when its length and depth are considerable.

For low walls that are not unduly prominent, stone formed from broken paving slabs or the waste pieces from the local builder's yard can here be pressed into service ; the only disadvantage is that it takes longer to put together, for all practical purposes in plant cultivation the result does not differ from that obtained by the use of larger stone.

CHAPTER III

DRY-WALLS IN GARDEN DESIGN

CONSIDERED as a type, the dry-wall is able to add distinction to the smallest garden, while those of great extent give scope for its wildest extravagance. That practical gardening took no cognisance of it for many years is by no means surprising ; only with the dawn of interest among plants able to brave the open garden at all seasons, and whose beauty is relatively as worthy of esteem whether disclosed in the individual or viewed in the mass, together with a just appreciation of the delight and pleasure inseparably associated with this, the oldest of the arts, could the presence of the dry-wall assert itself or its purpose be vindicated. It is quite a common error to regard the dry-wall as an innovation or at best a makeshift. So I may with advantage draw attention to some ways of applying it in practice to gardens of formal character, leaving, for the moment, the fuller consideration of its relation to informal gardening, to which the dry-wall tenders most direct sympathy.

When we consider closely the position of the dry-wall in garden design, we find it does not materially differ

in application from other branches of gardening, whether allied or distinct; one may broadly assert that wherever the nature of the ground would favour and lend reason to the presence of a masonry wall, of retaining character, there also the dry-wall can be introduced. This principle should be distinctly recognized and never surrendered except on rare occasions. I can only recall one instance where an artificial dry-wall was raised without this support; it was built on the "dyke" system, with a wide base, the sides converging till they formed but a narrow top, some twelve inches wide, the whole formed an enclosure to a garden devoted to plants of pleasant scents, Lavender, Nepeta, Heliotropes and similar plants being used in quantity in the beds. The effect was altogether pleasing. The idea has something quaint about it, and also a little of novelty. The suggestion, however, is only for gardens where the ground is level, and commends itself more to those in moist districts, as the success of such an idea would be difficult, in the hot, sun-baked counties of the south.

With proper selection of building material to harmonize with the other architectural features of the garden, there is no great difficulty in incorporating the dry-wall in any garden scheme; whether it occurs as the wall-veil, with or without the support of solid pillars or buttresses, or is introduced into the sides of steps, or even to form the steps, the entire scheme should be conceived and carried out in similar style, even to

the rough tooled edges of the stone. Highly dressed stone should not be mixed up in rough walling, otherwise a competing element is introduced that jars against our sense of fitness.

In the majority of instances where dry-walls are introduced as terrace-supports, they give much the best effect when the stone is fairly square-edged, although the size of the pieces may vary to any extent in reason, the general outline of the wall face will readily be estimated by referring to the sections shown in Plates IV. and V. If provision can be made for quite a narrow border along the wall top, this admits of planting behind the wall face, and gives a crown of vegetation that effectively destroys any sense of abruptness or harshness that may result from a too straight line, while it sensibly increases the depth of the wall, as presented to the eye. A dry-wall with such a border precludes the use of cap or coping stone, these architectural additions can, however, be readily introduced if we surrender the border along the wall-top. Generally, however, where these are in evidence only those plants that favour arid conditions at the best of times, will succeed in the uppermost courses, as the projecting stone cuts off the greater part of the natural supply of water.

Special gardens in the way of "sunk-gardens" furnish endless opportunity for the introduction of dry-walling. The ground need not necessarily require excavation, and while a gentle slope is desirable, it is

not altogether essential. A central feature, in the way of a rectangular pool, or series of small basins, may have a broad promenade, extending from the water edge to raised beds or borders of flowers set well back. The latter gives occasion for low dry-walls, while the part for walking upon may be laid with pavement material, like that to which the terms "crazy" or "rustic" is applied, and with plants of saxatile habit occasionally meeting one in the path, in company with the wall, and water features, a garden rich in incident and of extraordinary beauty will generally result.

It is difficult to reconcile dry-walling with accepted ideas in rock garden construction. It carries so clearly the imprint of human effort that its presence here defeats every endeavour we make to secure a natural effect. There are occasions where dry-walling may be permissible when associated with water garden schemes, but undue prominence should be avoided, at least make certain of obtaining the full effect of living vegetation and suborn for the moment our desire for pictorial effect with stone; here, as elsewhere, natural rock will alone provide the keynote to success.

The home grounds, however, offer widest opportunity for that impromptu setting that makes the dry-wall so desirable an asset for the display of Alpine growth. Where the lawn abruptly meets the pathway, or the garden emerges upon the park, the steep sides of the defile through which we approach the mansion, the

homely improvised banks that flank the lane or skirt the park or woodland leading to the wild garden, are all larger examples of reflected types that in miniature form are present in gardens of more modest pretensions. Under conditions approaching those indicated, it is possible to burden the dry-wall with untold wealth of floral beauty, and what more worthy of emulation than to indulge in extravagant riot, such as plant life revels in when the conditions are congenial and the restraint we rigorously observe in the orderly garden is here relaxed. The dry-wall, as I conceive it here, may be of the most homely description, and in the plurality of instances may follow the contour of the ground. Definite projections will at times alternate with strongly marked depressions, resulting in a series of promontories and bays, each presenting some dominant note in colour or arrangement and forming a series of delightful garden pictures.

CHAPTER IV

DETAILS OF BUILDING

FORTUNATE is it in dry-wall gardening that much of the actual building can be performed by ourselves, while anything beyond our own strength can be overcome with the help of an estate labourer or other handy man, in preference to the regular builder of masonry walls, who is more or less at sea when introduced to this system ; not that he cannot or would not attempt to interpret our dry-wall ideas, but he has simply acquired a degree of proficiency in his own particular work, that it is almost inherent second nature with him to build true and lay and bed level, and no amount of instruction on our part will weaken this trait in a skilled workman. Hence it is that one who has never practised building with mortar soon acquires the ideas we impress upon him in building dry-walls. Subject to this digression, we may pass on and consider positions when dry-walling may be attempted with success. There is but one influence that militates against the better class of plant growth, and that is the proximity of forest trees. Whether this is occasioned by overhead growth and consequent drip from the branches, or the more

PLATE IXA.



AN ANGLE OF DRY-WALLING UNDER CONSTRUCTION.

PLATE IXB.



A DRY WALL IN BLOOM.

insidious, because unseen, action from the roots (as in the case of surface rooting kinds like Beech, Elm, Chestnut, Lime and Poplar, which ramify a long way beyond the furthest extension of the branches, and being attracted by the favourable soil elements in the dry-wall soon overrun it, and extract all its goodness), eventually the legitimate occupants perish. The shade of buildings is not generally so harmful, although here local conditions require careful study before planting, as it is not unlikely that these may produce abnormal dryness in summer, with a corresponding excess of moisture during winter, the buildings hamper the free circulation of air, at all seasons, and under these extremes none but the hardiest plants can flourish.

In setting out any dry-wall having well defined lines, the actual front edge where it meets ground level must first be marked out. Drive in a stout wooden stake at either end, raised perpendicular to the ground line. Upon this ascertain the extreme height of the wall, and mark the perpendiculars at the given height. Now drive in a set stake on the higher ground above, where the wall top will come, and connect the set stake with the point marked on the perpendicular by a flat lath, nailing these ends together. To find the set-back for the wall face, take the number of feet in height and multiply either by three or four, expressing the result in inches. For example, a wall that will eventually be seven foot six inches high would give respectively $7\frac{1}{2} \times 3 = 22\frac{1}{2}$ inches, or $7\frac{1}{2} \times 4 = 30$ inches.

This distance is then measured from the inner face of the perpendicular stake, and set out on the horizontal lath and marked. This point is then connected with a fresh stake driven into the ground line close to the base of the perpendicular, nailed firmly at point of contact, and made rigid, where the original perpendicular is entirely removed and the horizontal shortened back to where it joins the inclined rod. This gives the set-back, or "batter" we must aim at in building, and with a builder's line stretched between these extremities, the courses can be laid with ease and precision. In order to illustrate this idea more thoroughly, and I hope clearer, I have prepared the drawings shown in Figs. IV. and V., on page 21, to which the reader is referred. Walls of irregular outline can be dealt with in the same way by increasing the number of set stakes. In this case the use of the line may not be necessary, as with a little practice the eye is soon trained in estimating a line that is sufficiently correct for this work. Then, even where the height varies in a given wall, the difficulty is readily overcome; the factor used at one part is constant throughout, and must be multiplied always with the height against the stake being set up. In this case the deeper parts have the lower courses brought up to the level of the shallower parts before the latter is started. Then all the wall proceeds and is carried forward together. As regard the factors, the use of the figure four gives a wall face an easy slope, while the figure three brings it a trifle

nearer to the upright. Walls may even be built with a factor of two. This, however, is not generally to be recommended, as it gives a very straight wall face, and unless more than ordinary care is exercised in laying the stones, little or no moisture can enter the wall face at any season.

Having set out the wall face, proceed with the footing for the lowest course of stone. Take out a shallow trench and bed each stone three inches below ground level, introducing any draining tiles thought necessary into this course and at the specified intervals. Behind the stones and around the tiles work in some rough ballast, with soil between the stones. Then ram carefully and make all firm and secure, ready to receive the next course. This process is repeated indefinitely until the requisite height of the wall is obtained. See page 17.

Contemporary with building will come planting. The chief advantage gained in doing both together lies in being able to introduce larger plants and thereby obtain an earlier effect. It has this further merit, however, that in every case it enables the roots to be spread out and carried back well into the body of the wall; hence losses are both rare and trivial, the majority of the plants taking to their new quarters without further ado, while there is practically no danger of them being suspended as may not unlikely occur when planting is delayed until the wall is erected.

Then in wall-gardening, as elsewhere, when pictorial

effect is sought, some definite scheme or plan should be followed in planting, and when possible its main features committed to paper, in advance of building (see diagram on page 41). Haphazard planting may and often does give pleasure as an initial effort, but as we become more ambitious its shortcomings are only too obvious. The character and personality of plants differ to an amazing degree, whether viewed in the individual or as seen in masses, and in the dry-wall they are presented in such broad aspects that conflicting elements should as far as possible be avoided, for when some note of colour jars in wall planting and its suppression becomes urgent, an interval of some time may have to elapse before its original beauty is restored.

Another feature in dry-wall planting is to observe the relation of robust and vigorous subjects to those of greater refinement. *Iberis*, *Helianthemum* and *Cistus* are typical of this class, and when these are introduced indiscriminately they will occur in all sorts of positions in the wall, and in a couple of years' time everything else below them is smothered or starved out for want of moisture. Then we have also to consider the habit of each; whether bushy, erect, or hanging. This aspect I have developed at some length in the various tables of plants that occur later in the book, by following which the beginner will avoid many mistakes.



PLATE X.

ELEVATION OF DRY-WALL, SHOWING PLANT GROUPING FOR COLOUR EFFECT.

- | | |
|---------------------------------|--------------------------------|
| A. <i>Achillea umbellata</i> . | G. <i>Dianthus Cresius</i> . |
| B. <i>Jasione Jankae</i> . | H. <i>Armeria Lauchearia</i> . |
| C. <i>Saponaria ocyroides</i> . | J. <i>Acantholimon</i> . |
| D. <i>Campanula muralis</i> . | |
| E. <i>Hutchinsia alpina</i> . | |
| F. <i>Aubrietia Dr. Mules</i> . | |

CHAPTER V

A CHAPTER ON SOILS

IN raising any dry-wall against existing banks, or in any form whatever, we naturally incline to make the best possible use of whatever soil lies readiest to hand. This practice offers serious disadvantage at times, and a word or two of caution may not be out of place. Regarding soils in which sand, gravel or chalk predominate, it may here be noted that drainage of a liberal character is already provided, so there remains but to add such other constituents as will furnish adequate support and nourishment for the varied occupants of the wall. Chalk has advantages that no other soil can lay claim to, for it constitutes a perpetual storehouse on which plants can draw at will, and only a limited number of those we are now considering resent the active agent it contains in the form of lime. Sand and gravel have little to commend them on the score of supplying nutriment to plants, although there are such examples among plants as *Arenaria tetrequetra* and *Morisia hypogæa* that positively revel in such. Soils of this character will require at least their own bulk of good loam added, and if this can be made up of two-thirds of the whole by the addition of leaf soil

and crushed builders' rubbish, a suitable compost for ordinary wall plants will result.

It is singular how some cultivators deprecate the value of chalk or even limestone soil containing much lime in solution, whereas their relation to hardy plants, outside the natural order, *Ericaceæ*, is not only beneficial but in such plants become permanent and progressive. One has only to compare a set of plants grown on natural chalk with a similar lot planted in a soil in which this substance is in negligible quantity, to realize the healthy vigour that animates and runs through the entire collection. Its influence is expressed in appreciable depth, both as regards the colour in the flowers and the normal greens that are present in the leaves. Its advantages are also noticeable in spring, when plants renew their activity, those to which heavy soil and much moisture are harmful evince marked strength that is all the more accentuated when grown in a dry-wall. There are many extravagances indulged in with the cultivation of rock plants, but none would more amply repay initial cost or be more productive in its future action than the incorporating in bulk of crushed chalk both in rock and dry-wall building, placing it where the delicate roots can ramify amidst it freely. After six years of most intimate association with such a natural soil, cultivating hardy plants of all kinds, in border, rock garden and dry-wall, I know of no soil to which the great majority of hardy plants evince equal partiality.

Heavy soils and those too retentive of moisture are not desirable in an unmixed state. Their plastic nature when moist renders them easy to build with, but any excess of dryness during summer bakes them hard, opening cracks that allow the air free access into the heart of the wall, and ultimately the roots perish for want of moisture. Soil of this nature should have a liberal addition of gritty material added to it ; crushed builders' rubbish is admirable, while coarse sand, granite or stone chips, broken chalk, crushed brick, and even wood ashes from burning, when freely mixed with heavy soils, lightens them to such an extent that plants take kindly to them. They are then more porous, more easily warmed by sun heat, and being able to root easier in them, plants exhibit healthier root action, and they sensibly increase in size and vigour. While the soil constituents call for particular attention, it is equally important to guard against the use of soil containing aggressive forms of plant life, that if introduced unconsciously into the wall soon make their presence known, often to the exclusion of the rightful occupants. In this way noxious weeds like Couchgrass, Ground-Elder, Bindweed, and Colts-foot are introduced. To safeguard their exclusion nothing short of personal supervision of the soil should be entertained, every tiny scrap of root must be removed, although the better plan is to discard such soil as unsuitable, for if once these weeds get covered in the wall, growth is almost certain and they spread



A DRY-WALL GARDEN IN ITS SECOND SEASON.

PLATE XII.



ROCK-PINKS FOUR MONTHS AFTER PLANTING.

in all directions, even into the centres of the plants themselves, and nothing short of pulling down the wall will ever eradicate them.

Viewed from a broad standpoint, sun-loving plants in dry-walls prefer a rich, loamy soil containing plenty of grit, while those common to bog, marsh and woodland shade are happiest in rich vegetable soils, consisting of loam, leafsoil and peat, with some coarse grit added. Coolness and moisture are, however, the conditions necessary to aim at, as when these are provided in adequate form, many shade-loving plants will flourish equally well in full sun.

CHAPTER VI

DRY-WALLS IN SUN

It is important to remember that among sun-loving rock plants, the easiest to grow are also those most generous with their flowers. Bearing this in mind, we readily estimate the gradual transition that comes over the wall garden as we pass from full sunlight to densest shade. In this way we learn that the dry-wall need never descend to monotony ; not only will the different conditions entail the use of totally different kinds of plants, but the method of arranging them can be varied to an infinite degree. The sunny dry-wall, more than any other garden feature, presents the greatest opportunity for effective display with plants of saxatile habit ; even then single plants convey little of the splendour revealed where the same kinds are arranged in groups or colonies. These again will be of any broken shape and run into each other in all sorts of ways, and as the plants mature they dispose themselves to advantage in the space each is allotted. One thing to avoid in wall gardening is any appearance of stiffness or strict formality, or indeed anything suggestive of flower garden methods. In this way we

come to appreciate plants not only for the flowers produced, but we quickly discern other qualities that are quite as worthy of esteem, and we get to know them in a way that gives confidence in their employment under widely different conditions. Then in the dry-wall we early come to recognize the variations that occur amongst plants raised from seed. With some examples it takes more than a cursory glance to reveal these, but at other times the difference is so pronounced that we can detect it some distance away. That *Gypsophila repens* is an instance is clearly seen by referring to the illustration on page 63 ; the central plant has more circular flowers, a much more substantial appearance than those on either side of it. It also shows how plants of one kind differ among themselves in the quantity of flowers each produces. Then the blue-grey colour of the foliage is an attraction in this species that is also seen strongly developed in the centre plant. Reference has been made to the fact that sun-loving plants are also the easiest to grow. This feature is of striking value to those seeking initiation into the comparative merits of the various kinds of Alpines, for in practically every instance success can be ensured with these. *Aubrietias* are recognized as belonging to this group ; they are quite indispensable, and provide the richest colour of all spring flowers. Some idea of this floral wealth may be gathered from the illustration on page 63. They belong to the group of hanging plants ; in winter the normal dress is dark green, but

as early as February bright spots of colour appear, till in April they hang as livid sheets of blossom with little of the foliage in evidence. The blue shades are most desirable and can hardly be misplaced, the colours associating in perfect harmony or contrast with those of other flowers. Nor is it necessary to discriminate as to which are best, for the colour values are more or less equal in the dry-wall, where one can estimate with the eye the slight difference that distinguishes some of the varieties much more correctly than words can convey. The varieties of *Aubrietia* having red or crimson flowers require more careful placing in relation to other colours. In half shady positions the colour is much purer under the softer lighting than is the case in full sun, where a weak taint of magenta overspreads the fading flowers, making them appear garish under sunlight.

Iberis are reliable subjects for the wall in sun. They are mostly evergreen bushes, wreathed like snowdrifts when in flower. This at least is the colour in *Semper-virens*, and its varieties *Garrexiana* and *Little Gem*, while two of the best for flowers are the hybrids, *correæifolia* and *Snowflake*. In *Iberis Tenoreana* and *Gibraltarica* the flowers are a pleasing shade of lilac, the latter is the largest and most distinct, and quite one of the most desirable for warm, sunny walls (see page 93). *Iberis* plants sometimes attain unwieldy size, but they spring readily from the root again if cut down after flowering. The season should be

particularly noted or otherwise a year's display will be sacrificed if this work is done at the wrong time.

The Pink or *Dianthus* family are most satisfactory wall plants. They afford great variety within themselves, from the wee grey or green tussocks seen in *neglectus*, *frigidus*, *Lereschei*, and *microlepis*, to the massive mounds of glaucous leafage seen in the garden forms of *Dianthus plumarius*. The race of hybrid rock-pinks draw the greater part of their vigour from this last-named species, and are indispensable in any wall of semi-wild character. The flowers come in generous sheaves and are usually some shade of white, pink, or rose, with the edges toothed, fimbriated or entire. *Cæsius* is tight and compact, in vivid mounds of glaucous grey, and slender stems carrying fringed, pink flowers. Of this species there are several garden forms to which distinctive names have been given ; all are desirable for the wall garden. *D. arenarius* is a grass-leaved pink, with white fimbriated flowers ; *D. alpinus* represents the green-leaved group of close, neat growth, and big rosy flowers that are delicately pencilled where the segments meet to form the tube. The maiden pink, *D. deltoides*, is a green-leaved trailer with small rose flowers on branching stems, and *D. graniticus* closely resembles it. In addition to the quartette first named, we can also include as small growers *fragrans* and its double form, *petræus* and its double variety, and also *Suavis* ; and among tall kinds *cruentus*, *superbus* and *sylvestris*. The part of dry-

walling seen at pages 45 and 73 gives some idea of the wall-garden when Pinks are coming into bloom.

The wealth of colour that breaks from a sunny wall when *Saponaria ocymoides* is in bloom can be estimated in quantity from the illustration on page 28. The colour of this flower is bright pink, that in the variety *splendens* more closely approaches crimson. In *Veronica rupestris* we have a somewhat similar effect, later in the year, but here the colour is rich royal blue, against a dense mat of heavy green. *Veronica incana*, on the other hand, is recognized by intense silvery leaves and spikes of blue flowers that stand erect, and in *V. Bidwilli*, one of the choicer kinds, the flowers are white except for some delicate pencillings of faintest azure.

The sunny wall garden fosters many plants that are not always safe on the rock garden. This applies to *Campanula garganica*, a native of warm, stony cliffs of Southern Italy. The stems are trailing and clothed with hirsute leaves, and pretty bell-flowers like expanded stars, the colour is pale blue, with a white star-shaped centre. It adds to the interest of a wall-garden when we can bring allied kinds of the same family together. Such an arrangement may be followed with the lesser Harebells, and so enables us to appreciate the various forms assumed. *Campanula Allioni*, *elatinoides*, *excisa*, *pulla*, *Raineri*, *tridentata* and *Zoysii* are precious wee kinds for upper courses near eye level. Plant them in equal parts of grit and

loam. More tractable, yet still small kinds, are *G. F. Wilson*, *pulloides*, *pusilla*, and those that are satisfied with ordinary attention include all the forms of *carpatica*, with *muralis*, and forms of *Steveni*, and *turbinata*. Hybrids like *Haylodgensis* and *Profusion* are prolific in flower and valuable on account of their late flowering, the season being August and September.

Geraniums, or Cranesbill, include a number of effective wall plants; *Lancastriense* is a neat evergreen with flesh-pink flowers and purple veins; *Wallichianum* becomes a spreading bush in summer, but dies back to the root in winter; the flowers are pale blue with veins of purple. This and the last-named have green leaves. In *argenteum*, *cinereum* and *Traversi* the foliage has a silky coating and in the dry-wall they appear as silvered mounds amid which the pink or rose-coloured flowers appear; with the exception noted, all lose their leaves in winter.

The familiar flowers of St. John's Wort are charmingly reproduced in miniature by plants like *Hypericum fragile* and *repens*. Both are heath-like and semi-prostrate. *Coris* is a delightful pigmy bush and reptans hangs its slender stems from the wall-face, bespangled with big golden blossoms. All are singularly free from every suspicion of coarseness. Distinct ball-like heads of flowers springing from evergreen tufts proclaim the Sheep's scabious, *Jasione Jankæ*, finely illustrated on page 93; in the wall garden it immediately arrests

attention, both by reason of the form of the flowers, as well as the soft pale-blue colour. *Leontopodium alpinum*, known as the Swiss Bridal Flower, belongs to the grey-leaved group, the flowers are not at all showy. What is generally mistaken for them are the enlarged bracts that have all the appearance of having been cut from some thick, grey, felted material; sentiment and romance cling to this plant even in exile, and this interest is strong enough to win it a foremost position in every collection of hardy plants. It is one of the easiest plants to raise from seed, and a certain perennial under dry-wall conditions.

In few families do we meet with blue flowers of more perfect colouring than is presented by the Gromwells, or *Lithospermums*. *Prostratum* and its variety *Heavenly Blue* are probably the best known. They form thick, spreading evergreen bushes, with slender twiggy branches thickly studded the greater part of the year with flowers intensely blue. In the type the colour is darkest; in *Heavenly Blue* it is lighter, brighter, and of great purity, reminding one of the blue of *Omphaloides*. Both plants show striking aversion to lime, the only exceptions so far that I have encountered, as the other Gromwells I am familiar with luxuriate in limy or chalky soil, and both *graminifolium* and *Gastoni* ripen seed in a good season. *Graminifolium* is a tufted plant with hard, grassy leaves surmounted in summer by slender arched stems, from which depend the inverted flowers of blue.

It is an Italian that exacts attention on the rock-garden, but its hardiness is above suspicion in the dry-wall. *Intermedium* is a hybrid between the last-named and *petræum*. It is hardier and the flowers are a lovelier shade of blue. *Petræum* develops into a close, dense bush, with flowers of lavish blue. *Gastoni* is deciduous and rare in gardens ; the flowers, like open trumpets, are blue with a white eye and surmount the short leafy stems in terminal heads. *Rosmarinifolium* is quite suggestive of Rosemary in the leaves ; the flowers are a most bewitching blue. Unfortunately this fine shrub is not hardy, and the only likelihood of coaxing the plant to succeed in the open is when backed against the sheltered, sunny face of the dry-wall. Generally the Gromwell colour is likened to that of the Gentians, but the former in my judgment quite transcends the latter ; the Gromwell blue is like purest empyrean, to which that of the Gentian appears crude and commonplace.

An important group of trailing rock plants, close favourites like *Aubrietias*, are the spiny stemmed Alpine Phloxes. Those of the *subulata* section embrace a wonderful range of colour, all being characterized by prostrate stems and heath-like leaves. The flowers resemble those of the tall herbaceous phloxes of our autumn borders, but they spring in masses from creeping plants scarce six inches high. Vivid, rose carmine ; *Sprite*, rose pink ; *nivalis*, white ; G. F. Wilson, mauve ; *Atrorubens*, purple rose, are among

the best. In addition the species *Amœna*, *Canadense*, *ovata*, and *reptans* are equally desirable.

Beside planting the actual wall-face we have also to consider the wall top. Most of the plants named in the chapter on Shrubs are available for this position. These will give, as it were, a crown of bushy things, and in addition one may have by way of change, plants like *Linum perenne*, *Zauschneria*, or *Armerias*, or some well-placed *Dianthus* will give a good effect against the sky-line when seen from below. A reference to the illustrations on pages 29 and 64 will convey a better idea of the effect produced under these conditions. Then in the wall foot such plants as have bold outlines in the leaves have exceptional value in giving contrast to the lighter forms that occur above, the effect of *Funkia Sieboldiana* is boldly portrayed in the angle formed by the steps, and illustrated on page 128. Beside the *Funkia* is seen a plant of *Epimedium*, another good plant for a like purpose ; while *Asarum Europæum*, *Megasea Saxifragus*, and *Iris stylosa* may be cited as further examples that offer valuable leaf contrasts for this kind of work.

SELECTION OF PLANTS FOR DRY-WALLS IN SUN.—SPRING FLOWERING.

Name.	Average Height in Feet.	Prevailing Habit.	Colour of Flowers.	Season of Flowers.	Soil.	Method of Increase.
*Alyssum alpestre .	1	creeping	yellow	March, April	limestone	} cuttings or seed
" montanum .	1	tufted	"	"	"	do.
" saxatile .	1	bushy	"	April, May	"	cuttings
" " fl. plena	1	tufted	double yellow	May, June	"	} seed or division
*Androsace carnea .	1	"	pink	May	gritty loam	seed
" Lagleri .	1	"	deep rose	"	"	seed
*Anemone pulsatilla .	1	erect	purple-violet	April, May	limestone	"
*Aquilegia Helenæ .	1	"	blue, white	May, June	sandy loam	"
" glandulosa .	1	"	"	"	"	"
*Arabis aubrietoides .	1	tufted	pale flesh	March, April	common	cuttings
*Arenaria montana .	1	trailing	white	May, July	"	seed or cuttings
*Aubrietias, all varieties .	1	hanging	various	Feb. to May	"	"
*Cheiranthus Allionii .	1	erect	orange	May, June	sandy loam	seed
*Draba aizoides .	1	tufted	yellow	Feb., March	limestone	} division
" dedeana .	1	"	white	"	"	or seed
*Erysimum pulchellum .	1	"	yellow	March, April	sandy loam	cuttings
Gentiana acaulis .	1	"	intense blue	April, May	limestone	division
*Geum montanum .	1	"	yellow	April	ordinary	"
*Gypsophila cerastoides .	1	"	white, lilac	May	sandy loam	"
*Hutchinsia alpina .	1	"	white	"	"	cuttings
*Iberis Gibraltarica .	1	bushy	lilac	"	"	seed
" jucunda .	1	tufted	rosy crimson	May, June	"	"
" Pruiti .	1	"	white	June	"	"
" Sempervirens in variety .	1	bushy	"	May, June	"	cuttings

* Indicates plants that may be raised from seed as described on pages 96-104.

Name.	Average Height in Feet.	Prevailing Habit.	Colour of Flowers.	Season of Flowers.	Soil.	Method of Increase.
<i>Iris stylosa</i> . . .	1	erect . . .	blue . . .	Jan., March	stony . . .	division
* <i>Morisia hypogæa</i> . . .	1	rosettes . . .	yellow . . .	Feb., May	sandy soil . . .	seed
* <i>Phlox amœna</i> . . .	1	tufted . . .	pink . . .	April, May	sandy loam . . .	division
" <i>reptans (verna)</i> . . .	1	spreading . . .	rose . . .	" "	" "	"
" <i>subulata</i> in var. . .	1	creeping . . .	various . . .	May, June	loam . . .	cuttings
<i>Sax. apiculata</i> . . .	1	spreading . . .	lemon . . .	March . . .	gritty loam . . .	division
" <i>Boydii alba</i> . . .	1	tufted . . .	white . . .	May . . .	" "	"
" <i>Burseriana</i> . . .	1	" . . .	" . . .	March, April . . .	limestone . . .	"
" <i>marginata</i> . . .	1	" . . .	" . . .	April, May . . .	" . . .	"
" <i>oppositifolia</i> . . .	1	spreading . . .	various . . .	April, May . . .	" . . .	"
* " <i>mossy section</i> . . .	1	" . . .	" . . .	May, June . . .	sandy loam . . .	"
* <i>Viola gracilis</i> . . .	1	tufted . . .	violet . . .	Feb., May . . .	" "	"

PLANTS FOR DRY-WALLS IN SUN.—SUMMER FLOWERING.

* <i>Acantholimon glunaceum</i>	1	bushy . . .	pink . . .	July, August . . .	gritty loam . . .	seeds
* <i>Androsace Chamæjasme</i>	1	spreading . . .	white . . .	May, June . . .	" "	division
" <i>Chumbyi</i> . . .	1	" . . .	pink . . .	" "	limestone . . .	"
" <i>sarmentosa</i> . . .	1	" . . .	rose . . .	" "	" "	"
" <i>lanuginosa</i> . . .	1	hanging . . .	pink . . .	July, Sept. . .	" "	"
* <i>Anthyllis montana</i> . . .	1	tufted . . .	red . . .	June . . .	sandy loam . . .	cuttings
* <i>Asperula hirta</i> . . .	1	" . . .	flesh pink . . .	June, July . . .	gritty loam . . .	division
" <i>nitida</i> . . .	1	" . . .	pink . . .	June . . .	" "	"
" <i>suberosa</i> . . .	1	" . . .	pale rose . . .	" . . .	" "	"

* Indicates plants that may be raised from seed as described on pages 96-104.

Name.	Average Height in Feet.	Prevailing Habit.	Colour of Flowers.	Season of Flowers.	Soil.	Method of Increase.
* <i>Aster alpinus</i> . . .	1	tufted	blue . . .	June . . .	common . .	division
* <i>Armeria cæspitosa</i> . . .	1	"	rose . . .	" . . .	gritty loam .	seed
" <i>cephalotes</i> . . .	1	"	crimson . .	June, Sept. .	common . .	division
* <i>Campanula</i> , G. F. Wilson	1	"	purple blue .	July, Aug. .	gritty loam .	"
" <i>garganica</i> . . .	1	hanging	lavender . .	June, Sept. .	" " . . .	"
" <i>Haylodgensii</i> . . .	1	bushy	blue . . .	August . . .	" " . . .	"
" <i>pulloides</i> . . .	1	tufted	purple . . .	June, July .	" " . . .	"
" <i>Profusion</i> . . .	1	bushy	blue . . .	July, Aug. .	" " . . .	"
* <i>Calamintha alpina</i> . . .	1	"	purple . . .	June, July .	" sandy soil .	"
* <i>Dianthus alpinus</i> . . .	1	tufted . . .	rose . . .	May, June .	gritty . . .	seed
" <i>graniticus</i> . . .	1	hanging	" . . .	June, July .	sandy . . .	"
" <i>glacialis</i> . . .	1	tufted . . .	" . . .	" " . . .	gritty . . .	"
" <i>microlepis</i> . . .	1	"	pale rose . .	" " . . .	" . . .	"
" <i>neglectus</i> . . .	1	"	carmine rose	" " . . .	" . . .	"
" <i>suavis</i> . . .	1	"	pink . . .	" " . . .	" . . .	"
* <i>Dryas octopetala</i> . . .	1	carpet	white . . .	July . . .	limestone .	division
* <i>Erythraea diffusa</i> . . .	1	erect . . .	pink . . .	July, Aug. .	light loam .	seed
* <i>Edrianthus dalmaticus</i> .	1	tufted . . .	purple . . .	May . . .	gritty loam .	"
" <i>pumiliorum</i> . . .	1	"	" . . .	" . . .	with . . .	"
" <i>serpyllifolius</i> . . .	1	"	royal purple	May, June .	stone chips	cuttings
* <i>Gentiana septemfida</i> . .	1	bushy	blue . . .	July, Sep. .	limestone .	seed
* <i>Globularia tricocantha</i> .	1	tufted . . .	" . . .	July . . .	garden soil .	"
* <i>Gypsophila repens</i> . . .	1	hanging	pink . . .	June, Sept. .	sandy loam .	"
* <i>Hypericum coris</i> . . .	1	bushy . . .	yellow . . .	June, Aug. .	" " . . .	"
" <i>fragile</i> . . .	1	hanging	" . . .	" " . . .	" " . . .	"
" <i>repens</i> . . .	1	"	" . . .	" " . . .	" " . . .	"
" <i>reptans</i> . . .	1	"	" . . .	" " . . .	" " . . .	"

* Indicates plants that may be raised from seed as described on pages 96-104.

Name.	Average Height in Feet.	Prevailing Habit.	Colour of Flowers.	Season of Flowers.	Soil.	Method of Increase.
* <i>Linum Narbonense</i> .	1	erect .	blue .	June .	sandy loam	seed
* <i>Lithospermum Gastoni</i> .	2	bushy .	" .	July .	limestone .	division
" <i>graminifolium</i> .	1	tufted .	" .	June, July	" .	seed or cuttings
" <i>prostratum</i> .	2	spreading .	" .	June, Oct.	peat, loam	cuttings
" <i>Heavenly Blue</i> .	2	" .	" .	" "	" "	"
<i>Lychnis viscaria</i>	3	" .	" .	" "	" "	"
<i>splendens</i>	3	tufted .	deep rose .	June .	gritty loam	division
* <i>Oenothera riparia</i> .	3	erect .	yellow .	July .	limestone .	"
* <i>Onosma taurica</i> .	3	hanging	" .	June, July	" .	cuttings
* <i>Phyteuma comosa</i> .	2	tufted .	blue .	May, June	" .	seed
" <i>orbiculare</i>	2	" .	" .	June, July	gritty loam	"
* <i>Papaver nudicaule</i> .	2	" .	various .	May, Sep.	light loam	"
* <i>Plumbago Larpentæ</i> .	2	bushy .	blue .	Sept., Oct.	limestone .	division
* <i>Potentilla ambigua</i>	2	creeping	yellow .	May, June	light loam	"
" <i>nepaulensis</i>	2	bushy .	rose .	July, Aug.	" "	seed
" <i>Wilmottianæ</i>	2	" .	carmine .	June, Sept.	" "	"
* <i>Polygonum affine</i> .	3	spreading	white .	July, Sept.	garden soil	division
* <i>Primula calycina</i> .	1	tufted .	purple .	May, June	limestone .	division
" <i>marginata</i>	1	" .	lavenderpurple	" "	" "	"
* <i>Prunella webbiana</i> .	3	" .	purple .	July, August	garden soil	division
* <i>Petrocallis pyrenaica</i> .	4	" .	pink .	May .	gritty loam	"
* <i>Saponaria ocymoides</i>	1	hanging	pink .	May, June	light loam	seed or cuttings
<i>Saxafragas</i> , see page 105	1	" .	" .	" "	" "	"
<i>Schizostylos coccinea</i>	1	erect .	crimson .	Sept., Oct.	garden soil	division
* <i>Sedum brevifolium</i>	1	tufted .	white, pink	July .	sandy loam	"
" <i>corsicum</i> .	1	" .	white .	June .	" "	"
" <i>dasyphyllum</i> .	1	" .	white, pink	June, July	" "	"

* Indicates plants that may be raised from seed as described on pages 96-104.

Name.	Average Height in Feet.	Prevailing Habit.	Colour of Flowers.	Season of Flowers.	Soil.	Method of Increase.
*Sedum kamschaticum .	1	bushy .	orange-yellow.	Aug., Sept.	limestone .	“
“ pulchellum .	1	spreading .	pink .	July, Aug.	“ .	“
“ rupestre .	1	“ .	yellow .	Aug., Sep.	“ .	“
“ spurium .	1	hanging .	crimson .	“	“ .	“
*Sempervivums .	1	tufted .	various .	June, Sept.	sandy loam .	“
*Silene alpestris .	1	“ .	white .	May, June	gritty loam .	seed or cuttings
“ Elizabethæ .	1	“ .	pink .	“	“	“
“ schafta .	1	“ .	red .	July, Aug.	“	“
*Thymus serpyllum in variety .	1	hanging .	various .	“	sandy loam .	division
Tunica saxifraga fl. pl. .	1	tufted .	pink .	June, July	“	cuttings
*Veronica Bidwelli .	1	“ .	white, lilac .	July, Aug.	“	“
“ prostrata .	1	hanging .	blue .	May, June	garden soil .	division
“ repens .	1	“ .	blue, white .	“	“	“
*Zauschneria californica .	1	erect .	orange scarlet	Aug., Oct.	limestone .	cuttings or division

* Indicates plants that may be raised from seed as described on pages 96-104.

CHAPTER VII

WALL GARDENS IN SHADE

I MAY here explain that the idea of assigning definite positions to certain plants, or in recommending distinct plants for special positions, has nothing arbitrary about it, whilst the question as to whether some plants succeed best in sun or shade, each must work out for himself. The principle followed here is to give approximately plants that have every likelihood of proving satisfactory in the positions or under the conditions indicated. This I hold affords the greatest practical assistance to those seeking information and guidance. It is the initial effort we must strive to foster and encourage; the plants themselves assist, and later, the experience that follows from our own practice and observation will make each to a great extent independent of text books or other assistance of a like nature.

The various tables throughout this book are compiled with this object in view, and in no case are they exhaustive. The same applies to some of the plants I have included in this chapter, and the various tables dealing with walls in shade. Many plants will bear a

fair amount of sun, provided we are careful to provide coolness and moisture to the roots, along with the greater exposure. There is the danger, however, where this knowledge is assimilated too readily, of giving a feeling of sameness, that frequently amounts to repetition, and our work instead of standing out boldly and with some degree of originality, drops to the level of commonplace. There is probably no aspect of gardening that demands greater attention on the part of gardeners than the sympathetic arranging of plants in order to bring out the vigour, distinction and beauty that are latent in flower and leaf, for in my view there is nothing that destroys the harmony, repose and general picturesqueness of a garden more effectively than some plant repeated indefinitely from the moment we leave the front entrance till we pass outside the garden gates. Pampas Grass is an offender of the worst degree, but fortunately it is not a dry-wall plant.

One of the likeliest plants to transgress what I have said above is *Arenaria balearica*, but here the plant is of microscopic dimensions and can hardly offend to any appreciable degree; the bright green fretted stems ramify over the wall-face in all directions. It figures prominently in this way in the illustration on page 73. The flowers are white and starry and most freely produced where it receives some sun; on a wall-face with a north aspect the plant spreads freely, but is sparing with its flowers. *Astilbe simplicifolia* is a

miniature spiræa-like plant that flowers in late summer, a cool place at the wall foot in peat and loam answers its requirements. Here also *Caltha palustris* fl. pl. remains long in flower, the rich orange yellow of the globular flowers is most pleasing in the shade that the wall affords. Soil and conditions similar to those that the *Astilbe* enjoys will grow *Trillium* and *Cypripedium spectabile*; both are plants of striking beauty when seen amidst an accompanying growth of fern. *Corydalis nobilis* and *Dicentra Formosa* are most at home in the wall courses higher up; both have finely cut parsley-like leaves, while in the first named the flowers are greenish-yellow. Those of *Dicentra* are bright pink and come in relays from May till July.

Every shady wall should embrace a wide planting of the Willow Gentian. Not only in the wall face, but some plants should occupy the top. This plant is the embodiment of grace and becomes an outstanding feature in any wall garden during August and September, the slender, flexible stems arch over most gracefully, the big blue flowers stand erect upon the upper face, like wands of azure in the wall. Then it is quite indifferent about soil, as it grows quite as well in chalky soil as in those especially prepared with peat and loam. *Omphalodes verna* is one of the most captivating of wall beauties in spring; the flowers are a fascinating pale-blue with a fine white line that quarters the flower, in colour and form they are most suggestive of Forget-me-nots, but here they nestle

PLATE XIII.



ROUGH STONE PATHWAY IN CONNECTION WITH DRY-WALLING.

PLATE XIV.



CAMPANULA MURALIS, GYPSOPHILA REPENS, AND VERONICA RUPESTRIS.

PLATE XV.



AUBRIETIA DR. MULES.

among comparatively large leaves that rise erect from creeping stems. *Nitida* is taller, with graceful panicles of brightest blue; the leaves are smaller, slightly glaucous, and tufted. A wall that obtains plenty of light without direct sunshine grows this plant well.

Anemones are delightful plants for the half-dry-wall, that is, not too much shade nor an excess of sun. We may grow these and enjoy them in all sorts of ways and positions. Here I only deal with herbaceous kinds, leaving the bulbous sorts to come under the chapter dealing with the seasons in the wall garden. *Baicalensis* is a spreading plant, not unlike *sylvestris*; the flowers are white, except for a flush of dark purple that spreads over the reverse of the petals. It is regarded as a geographical form of *sylvestris*. *Narcissiflora* throws up flower stems in sheaves, the small white flowers are exceedingly numerous on branched stems. *Sylvestris* is the Snowdrop Anemone, the name suggesting itself when in bud. A better plant is the *grandiflora* form, the flowers are larger and it is much more reliable. *Hepaticas* are now included under *Anemone*. These appear as densely packed balls of blossom in spring. They succeed either at the wall foot or in roomy pockets up to the half-way line in low walls, and all withstand dense shade. *Angulosa* is the most vigorous, with trilobe leaves and large flowers of blue. *Triloba* is smaller and embraces red, white and blue flowers in single form, and also includes varieties with double

red or blue flowers. They are most impatient of removal, and should not be transplanted more than is necessary ; nor are they partial to soil, unless it be that of a chalky nature, any good garden soil will satisfy their wants.

Primulas are outstanding features in shady walls. In the dampest part at the wall-foot will occur *rosea* and *Sikkimensis*, both Himalayans. The first is small and beyond question the brightest jewel in the wall garden in spring ; the flowers are clearest, purest pink, bunched together on six-inch stems. *Sikkimensis* is taller, with pendulous sulphur flowers. *Capitata* is a plant for well up the wall face ; the leaves and stems are mealy and the flowers dark violet in globular heads. A similar position gives opportunity to introduce *Frondosa*, *involucrata*, *Parryi* and *spectabilis* ; and wide courses near ground level will become matted with the spreading shoots of *P. Sieboldi* (*Cortusoides*). *Primulas viscosa*, Mrs. J. H. Wilson, *pedemontana* and *ciliata coccinea* are charming varieties of striking colouring that succeed with me in shady walls. *Pedemontana* is a recognized species. As with all plants of finer growth, Primulas need not be attempted where the wall garden is encroached upon by trees or big bushes, as failure alone will result. Walls intended for Primulas and *Ramondias* or similar plants are best constructed with the projecting ledges shown in Fig. III., and illustrated on page 17. *Ramondias* are always admirable in company with these Primulas and small ferns. Their cultivation

is often wrapped up in a good deal of unnecessary mystery ; they are generally supposed to prefer and succeed best in vegetable soils like peat and leafsoil, but all my plants were grown for years in chalky soil, and the specimens equalled anything I have yet come across in the *Ramondia* line grown under open-air conditions. On chalk soils one does not require to take such scrupulous care in finding vertical positions to plant in, even where the centres get silted up in a flattish position they never rot. The only reason for vertical planting is that it preserves the appearance of the plants, otherwise they succeed quite as well when given an almost level position. I have raised many score of plants from seed sown in September as soon as it was ripe. The earliest I managed to flower these under open-air conditions was the second spring following that in which they were sown, or approximately in twenty-one months' time. I have tried them planted in all sorts of ways, in a north wall that receives no sun they are as satisfactory as anywhere. They also do well in walls that catch the afternoon sun in summer, but unless the soil is cool and moist they suffer to some extent ; the greatest failure I had with these was some I tried under the shade of a tree. All summer and autumn they scarcely moved, although they were as good as any I had raised. Then when winter came they promptly rotted away, a thing that surprised me, as I had never known them to rot when free from overhead growth. All *Ramondias* are good wall garden

plants ; *Pyrenaica* and *Serbica Nathaliæ* are two of the best and suggest in their refined appearance some tender exotic. The flowers rise on six inch stems from big rosettes of rugose leaves all covered with tawny hairs below. Whenever it begins to feel the effect of drought the leaves curl inward, exposing the under surface, and it is something in the nature of a shock to come unexpectedly for the first time and find what appear tawny balls where usually we expect to find healthy looking green rosettes. However, a good soaking of clear water quickly adjusts matters again, although, if planted where they receive any measure of sun, this rolling up will be always more or less in evidence during mid-day. The flowers are always some shade of mauve or violet, except in a white form of *Pyrenaica*.

Oxalis enneaphylla is a delectable plant for a wall garden. The flowers are soft, silvery-pink, and sumptuous in appearance. The leaves are in mounds of silvery-grey. It must have some sun, and a cool site, and this can generally be arranged in a wall facing west. One may not always translate correctly at first time of trying the peculiar needs of some plants. *Oxalis* is a case in point, and another is *Ourisia Coccinea*. It is a charming plant for cool ledges in shady walls ; the bright scarlet *Pentstemon*-like flowers are carried upon light and dainty spikes. *Mazus pumilio* is more accommodating, forming flat creeping masses along the higher edges, where it is drier. The flowers are

quaint and coloured blue, on stems that just bring them clear of the leaves.

Where some of the upper courses can be partly cleared and filled with decayed leaf soil like that found in oak plantations, a suitable place will be provided for *Nierembergia rivularis*. It travels along the courses much in the way of the Ivy-leaved Toadflax; the flowers are like a small *Convolvulus* and are plentifully produced among the leafy, creeping stems. *Tiarella cordifolia* is most happy in a shady wall, tumbling in foam-like masses from the wall-top. The flowers are erect spikes of creamy-white, and the pretty marbled leaves are about as great an attraction in this old plant as the flowers. *Haberlea Rhodopensis* is a good plant for the same conditions as *Ramondia* and *Mertensia siberica* will give a similar effect in spring to that which we strive to obtain from *Gentiana asclepiadea*, the Willow Gentian already described.

PLANTS FOR SHADY WALL GARDENS.

Name.	Average Height in Feet.	Prevailing Habit.	Colour of Flowers.	Season of Flowers.	Soil.	Method of Increase.
*Adonis vernalis . . .	$\frac{3}{4}$	erect, bushy .	yellow . . .	April, May .	common .	division
*Anemone baicalensis . . .	$\frac{3}{4}$	erect, spreads .	white . . .	May . . .	" .	"
" narcissiflora . . .	1	erect . . .	" . . .	" . . .	" .	"
" apennina . . .	$\frac{3}{4}$	" . . .	blue . . .	" . . .	" .	"
" blanda . . .	$\frac{1}{2}$	semi-erect . . .	" white, pink .	April . . .	" .	"
" nemerosa var. . .	$\frac{1}{2}$	erect . . .	blue or white .	May . . .	leaf-soil .	"
*Arenaria balearica . . .	$\frac{1}{2}$	creeping . . .	white . . .	all summer .	common or {	"
" cæspitosa . . .	$\frac{1}{2}$	spreading . . .	" . . .	" . . .	sandy .	"
Asarum europæum . . .	$\frac{1}{2}$	tufted . . .	green, brown .	May . . .	common .	"
Astilbe simplicifolia . . .	$\frac{1}{2}$	erect . . .	creamy white .	Aug., Sept. .	peat, loam .	"
*Astrantia carniolica . . .	1	" . . .	silver rose . .	May, June .	common .	"
*Cardamine trifoliata . . .	$\frac{3}{4}$	tufted . . .	white . . .	May . . .	loam & leafsoil .	"
*Campanula carpatica . . .	$\frac{3}{4}$	" . . .	blue or white .	July to Sept. .	sandy loam .	"
" pusilla . . .	$\frac{1}{2}$	" . . .	" . . .	May to Sept. .	" .	"
*Corydalis nobilis . . .	$\frac{3}{4}$	spreading; bushy .	" . . .	" . . .	" .	"
*Cyclamens in variety . . .	$\frac{1}{2}$	tufted . . .	green, yellow .	May, June .	common .	"
			various . . .	spring or autumn .	limestone .	seed
Cypripedium spectabile . . .	1	erect . . .	rose-pink . .	May, June .	moist peat .	division
*Dicentra formosa . . .	1	bushy . . .	deep pink . .	May to Sept. .	common .	"
Epimediums . . .	1	" . . .	various . . .	May, June .	" .	"
*Erodium Reichardi . . .	$\frac{1}{4}$	flat, tufted . .	white . . .	June . . .	sand loam .	"
*Erinus alpinus . . .	$\frac{1}{4}$	tufted . . .	purple or white .	May, June .	" .	seed
*Erythroniums . . .	$\frac{1}{4}$	erect or tufted .	various . . .	April, June .	sandy peat .	seed
Funkias . . .	$\frac{1}{4}$	bushy . . .	blue or lilac .	July, Sept. .	common .	division

* Indicates plants that may be raised from seed as described on pages 96-104.

Name.	Average Height in Feet.	Prevailing Habit.	Colour of Flowers.	Season of Flowers.	Soil.	Method of Increase.
<i>Galax aphylla</i> . . .	$\frac{1}{2}$	bushy . . .	white . . .	July . . .	gritty peat . .	division
<i>Gentiana asclipiadea</i> . . .	$1\frac{1}{2}$	erect, arching	purple blue . .	Aug., Sept. . .	limestone . .	"
* <i>Haberlea rhodopensis</i> . . .	$\frac{1}{2}$	rosettes, tufted	lilac . . .	May . . .	cool peat . .	seed or division
<i>Hepatica angulosa</i> . . .	$\frac{1}{2}$	tufted . . .	blue . . .	Feb., March . .	limestone . .	division
" <i>triloba</i> . . .	$\frac{1}{2}$	" . . .	blue, red, white	" . . .	" . . .	"
<i>Mazus pumilio</i> . . .	$\frac{1}{2}$	flat, creeping	purple-blue . .	May, June . .	gritty loam . .	"
* <i>Myosotis</i> in variety . . .	$1\frac{1}{2}$	tufted; erect . .	blue . . .	spring . . .	loam, leafsoil .	" or seed
* <i>Mentha requienii</i> . . .	$\frac{1}{2}$	flat, creeping . .	purple . . .	summer . . .	sandy loam . .	division
<i>Mertensia sibirica</i> . . .	$1\frac{1}{2}$	erect . . .	blue, pale . .	May, June . .	cool peat . .	"
<i>Nierembergia rivularis</i> . . .	$1\frac{1}{2}$	running . . .	white . . .	May, June . .	loam, leafsoil .	"
<i>Omphalodes verna</i> . . .	$\frac{1}{2}$	" . . .	blue . . .	May . . .	limestone . .	"
<i>Ourisia coccinea</i> . . .	$\frac{1}{2}$	spreading . . .	scarlet . . .	June, July . .	cool peat . .	"
<i>Oxalis enneaphylla</i> . . .	$\frac{1}{2}$	tufted . . .	white . . .	May, June . .	" . . .	"
<i>Polygala chamæbuxus</i> . . .	$\frac{1}{2}$	" . . .	" . . .	" . . .	" . . .	"
<i>purpurea</i> . . .	$\frac{1}{2}$	" . . .	" . . .	" . . .	" . . .	"
* <i>Primula farinosa</i> . . .	$\frac{1}{2}$	bushy . . .	purple, yellow	April, Nov. . .	" . . .	division or seed
" <i>frondosa</i> . . .	$\frac{1}{2}$	erect . . .	lilac . . .	May, June . .	loam, leafsoil .	"
" <i>cashmeriana</i> . . .	$\frac{1}{2}$	" . . .	rose-lilac . . .	April, May . .	" . . .	"
" <i>capitata</i> . . .	$\frac{1}{2}$	" . . .	shades of purple	March, April . .	rich loam . .	"
" <i>latifolia</i> . . .	$\frac{1}{2}$	" . . .	violet . . .	Aug., Sept. . .	loam, leafsoil .	"
" <i>viscosa</i> . . .	$\frac{1}{2}$	" . . .	plum . . .	May . . .	peat, loam . .	"
" <i>rosea</i> . . .	$\frac{1}{2}$	tufted . . .	rose-purple . .	April, May . .	limestone . .	"
" <i>Sikkimensis</i> . . .	$\frac{1}{2}$	" . . .	glowing pink . .	" . . .	moist loam . .	"
* <i>Ramondia pyrenaica</i> . . .	$\frac{1}{2}$	erect . . .	lemon . . .	" . . .	" . . .	"
" <i>alba</i> . . .	$\frac{1}{2}$	rosettes . . .	violet . . .	June, July . .	" . . .	seed or division
" <i>serbica</i> . . .	$\frac{1}{2}$	" . . .	white . . .	May, June . .	cool peat, loam	"
" <i>Nathaliæ</i> . . .	$\frac{1}{2}$	" . . .	pale mauve . .	" . . .	or	"
" . . .	$\frac{1}{2}$	" . . .	violet mauve . .	" . . .	limestone	"

* Indicates plants that may be raised from seed as described on pages 96-104.

CHAPTER VIII

NATIVE PLANTS FOR SUNNY WALLS

IN any consideration of the broader aspect of wall gardening some recognition must be given to our native plants, for many of them have as much merit in this branch of gardening as some exotics upon which we lavish much greater attention. They can generally be worked into the garden scheme where the latter overflows into the wild garden, wilderness or woodland. Here we can group upon bolder and more daring lines, and indulge in those tangled mazes of wayward growth that should always distinguish our efforts with native plants as opposed to the orderly ideas we impose in our gardens proper. When one realizes the wealth of loveliness that lies latent in many of our wildlings, we can readily estimate how great would be the success of a dry-wall devoted to them alone. Fortunate are those who garden on natural chalk or limestone soil, or who can incorporate these substances freely in the staple soil. With but a few exceptions that are noted, I have gathered the plants named in this chapter growing wild on a soil of this nature, and when transplanted into a dry-wall or introduced by seed, they invariably acquit themselves with credit and provide

a welcome change to the recognized run of wall garden plants.

Frequently one discovers fresh beauty in these natives when met with in the wall garden. *Geranium Robertianum* is a case in point. It is of annual duration only ; hence it is easily introduced by seed and sows itself afterwards. The fretted leaves are arranged in neat rosettes that in autumn glow with tints of crimson, red and purple. Close pressed against the wall-face it is most suggestive of some fretted mosaic, sculptured in boldest relief. Larger in every way is *Geranium pratense*, yet here also the cut leaves are of gorgeous colour in autumn, crimson, orange and purple. The flowers are large, purple-blue and in this case the plant is perennial, growing freely in sun or shade, the former, however, gives the best leaf colour. The Common Toadflax, *Linaria vulgaris*, is a typical wildling with floral beauty equal to many garden plants. It is perennial, having glaucous grey leaves, and bright yellow flowers, deeper coloured on the lip. From July till September it is a conspicuous object in derelict spots beside disused chalkpits, or the uncultivated corners of the cornfields. *Linaria cymbalaria* is so common an occupant of old masonry, that it almost passes as a native. This claim, however, is generally disputed, although it detracts nothing from its merit as a dry-wall plant. Insinuating its delicate stems along the wall-courses, it spreads far and wide, and soon claims large areas of the wall as its own.

Lotus corniculatus (Bird's-foot-trefoil) is a typical pasture plant worthy of a place in the wall garden. Its rich flowers of orange-gold greet us early in May, and as late as October stray blossoms may still be seen. *Campanula rotundifolia*, the wild Harebell, will often appear spontaneously in dry-walls, probably introduced by the agency of wind or birds, or contained in the soil brought with some other plant. In this way we also account at times for plants like Wallflower, Foxglove and Snapdragon. The last, however, is a garden escape, and cannot support its claim to be regarded as a native, although its frequency in old masonry almost justifies this belief. These subjects are of interest in another way, for they represent a group of plants with ascending stems, so that where they occur in the upper courses of the dry-wall, the greater part will stand clear above the top and sensibly increase the apparent height. As to how far the garden-bred colours common to Wallflowers and Antirrhinums of the present day may be legitimately included in dry-walls is purely a matter of taste. Personally, where wild types are alone represented, I would favour only pure, well-defined self-colours, sowing seed direct in the wall, then boldly remove the undesirables when they flower ; dry-wall conditions combined with age will soon correct the exaggerated size of the flowers with which we are familiar among border examples. The short-spurred Columbine, *Aquilegia vulgaris*, should be mentioned for a similar purpose ; in chalky soil it grows big and handsome,



GARDEN STEPS FORMED WITH STONE "TREADS" AND PANTILE "RISERS."

PLATE XVII.



"THE BALEARIC SANDWORT" (*ARENARIA BALEARICA*).

PLATE XVIII.



ROCK PINKS IN A SUNNY WALL.

providing a display over many years. Its substantial, rich green, compound foliage alone entitles it to a position of prominence. A rare native that occurs in restricted localities on the chalk is *Anemone pulsatilla*, also known as the Pasque flower. Its big violet flowers are succeeded by quaint and interesting downy seed heads. I have never found it wild, although I have raised it from seed, and find the colour varies even to include white forms. Although a typical chalk plant like many others, it appears indifferent to soil so long as it is deep and rich.

Sandy pastures, during July and August, become studded with the delicate pink flowers of *Erythræa Centaurium*. The Centaury, as it is called, is but an annual and can be introduced by seed. The flowers are on erect, branched stems some nine inches high; they have the curious habit of closing up early in the afternoon, yet even in this state the pearly purity of the colour is strong enough to catch the eye.

Another native plant with vivid coloured flowers is *Sedum telephium*; its bold nature becomes accentuated at the wall-foot, although the wall-top often suits it best. The stems are unbranched and spring directly from the root, clothed with blue green fleshy leaves and surmounted by bright crimson flowers in terminal heads. Like its smaller neighbours, *album*, *acre*, and *anglicum*, it will withstand the hottest exposure, and grow freely in soil that is all but destitute of plant support. In this connection may be noted the

common Houseleek (*Sempervivum tectorum*), a familiar plant seen growing on the roofs of outhouses in country districts; the fleshy imbricated rosettes attract greater interest than the stout stems that carry the starry flowers. The Houseleek is indigenous to mountain regions in Central and Southern Europe, but is generally regarded as a naturalized plant in these islands. Of distinct foliage value at the wall-foot is the Gladdon Iris (*Iris fœtidissima*). It is a true chalk plant with evergreen, sword-like leaves of dark bronzy-green. The flowers are purplish-blue with reticulated throat, and give place to seed pods that, when ripe, burst open, yet retain the bright orange seeds, exposed within the recurved sections of the seed pods.

Sentiment rather than beauty includes in the wall garden *Reseda lutea*, the wild Mignonette, a chalk plant easily introduced by seed. The Welsh Poppy, *Meconopsis cambrica* and *Corydalis lutea*, both have yellow flowers and seed freely, and once introduced to the dry-wall can generally be left to shift for themselves. Beside the main roads in country districts one frequently meets the wild rock-rose, *Helianthemum vulgare*, and the Restharrow, *Ononis arvensis*. On chalk land they are common plants, the first named with flowers like small single roses, the latter with dainty rose coloured, pea-shaped blooms. To these the rough dry-wall is liberty after the strenuous existence beside the highway. Spreading out into matted bushes they load themselves with flowers in summer.

A close evergreen carpet that emits a delicate perfume when bruised, is a striking characteristic of the wild Thyme, in addition a glow of soft purple spreads over the plant when it flowers in August and September. *Stellaria holostea* favours half-shady banks and the edges of copses in chalky districts. There the growth is richer and taller than in the sunny wall, but the latter gives the most generous supply of flowers. *Silene maritima* and *Armeria maritima* are both seaside plants. The latter is the Thrift of cottage gardens, and is seen in the wall group illustrated on page 89. Both succeed in sandy soil in any sunny wall.

Two pretty Pinks are legitimate natives : *Dianthus cæsius* is found on the limestone cliffs of Cheddar ; *Deltoides* is the Maiden Pink, with grass-green foliage and rose coloured flowers, while in *cæsius* the flowers are erect and pink. *Centranthus ruber* is a plant for bold effects, and revels in chalky places in sun ; the flowers are crimson, pink or white. It is best known under the name of Red Valerian.

CHAPTER IX

NATIVE PLANTS FOR WALL GARDENS IN SHADE

THE dry-wall in shade also carries a distinguished number of native plants; amongst those grown for their flowers, the variety becomes more restricted the denser the shade we expect them to endure. Under these conditions plants that have attractive leaves gain in importance, hence in the deeper shadows of the wall garden Ferns come into prominence. The general effect of a well-planned and successfully planted wall garden in shade is that of rich, luxuriant foliage, masking the wall-face from top to bottom—amidst this mass of greenery flowers stand out with striking boldness, and not infrequently subjects that pass as commonplace when encountered regularly in our daily walks, beget a fresh aspect, and their characters impress from a different and therefore new standpoint when we meet them ensconced in the inimitable setting that such a wall affords. *Primula vulgaris*, the wild Primrose of railway cutting, coppice and country lane, is a case in point. Its beauty is proverbial and we esteem it under every condition; but in the shady wall it takes on a personality that in its untamed

state, among multitudes of its kind, only the studious can discern. In Nature we see and appreciate its effect in masses ; in the dry-wall we come to closer contact ; a single glance at any time discloses the superficial beauty of a flower, but even here closer examination reveals latent beauties we scarce suspected ; the rugose, corrugated surface of the leaves, their outline and veining are admirable in contrast to the soft, pure colour of the primrose flowers, held daintily by slender stalks that spring directly from the root, and like a village nosegay repose within the protecting shelter of the leaves. As an impressionist study in floral loveliness it conjures up in fancy before us those native haunts by hill and glen, while it is also pregnant with the promise of summer, of lusty life and sylvan joy. A close relative of *vulgaris* is *Primula farinosa*, the dainty Bird's-eeen of Yorkshire Moor and Scottish Highland. Of this aristocrat among natives, it is difficult to write in cold, calculated words : the delicate proportions apparent in every detail proclaim it a model of perfect grace and faultless symmetry. Conceive it as a wild flower among the sparse herbage of open hill-sides, its slender nine-inch stems all heavy with a mealy coat, like silver farina. This substance is densest on the under side of the leaves, but is also strongly developed on stem, calyx and bud. The Bird's-eeen, like the common Primrose, is perennial, the leaves, obovate in outline, are narrow, and die away at the approach of winter, leaving a stout, swollen

stem-bud as the only evidence of life. In level planting it has a trick of getting ejected from the ground in winter, hence after a thaw, it is a common experience to find the plants lying about in all directions, often roots uppermost. In the dry-wall this trouble is hardly noticeable; the leaves when they appear in spring are narrower than in the wild primrose, and much smaller. The flowers are on single stems that spring from the central axis of the plant, which they surmount in rounded heads, much in the way of the *Polyanthus*. The individual blossoms are a delicate tint of lilac-purple, with a conspicuous eye of yellow in the centre. Occasionally one meets with forms having flowers of a creamy-white shade, but these are not so desirable as the type. There is, however, a pure white variety that originated with the Craven Nursery in Yorkshire. This plant is indeed an acquisition.

Primula scotica so closely resembles *farinosa* in general character that it is considered but a geographical variety. The habit is shorter, stouter; the leaves are also broader and the flowers are coloured deep purple; the plant is quite local in its distribution, and occurs only in restricted areas in the North of Scotland. Another desirable native *Primula* for the wall garden is the Cowslip of our meadows, *Primula veris* by name. Here again the flowers appear in clusters that surmount the slender stalks. The individual flowers hang inverted from the stem. They are tubular in form, and coloured yellow, except where the mouth expands and is

suffused by a ruddier tint of orange-yellow. The colour, however, is variable, and examples of much deeper colouring are not uncommon.

Even where the dry-wall has an aspect due north, provided it obtains a fair amount of light, it will grow the Wood Anemone to perfection. This most graceful of wild plants, known as *Anemone nemorosa*, clothed in richest greenery and decked with snowy flowers, appears admirable in company with Primrose and Wood-Hyacinth; the latter, known as *Scilla nutans*, can be introduced in roomy pockets close to ground level, or in the immediate footing of the wall. *Convallaria majalis*, the wild type of Lily of the Valley, merits a place for its foliage value. A like reason holds our interest in *Cotyledon umbilicus*, its rotund leaves of succulent texture appear crystalline under reflected light. It is the glory of the dry-walls that hedge the bylanes of North Devon and Somerset. Every few yards of walling will give this unobtrusive native in every stage of advancement from tiny seedlings whose leaves scarce cover a threepenny piece, to stout, well-matured specimens two and three inches across. Seen in company with native ferns, which in this instance approximate to eighty per cent. of the wall growth, the harmony of the greens in contrast with the leaf-forms is admirable and a valuable object lesson to guide us in our studied attempts at grouping.

Some plants that ordinarily frequent moist bottoms, seem to have all their wants satisfied in any cool place

at the foot of the dry-wall. *Anemone nemerosa* I have already noted, while *Geum rivale* is of similar nature ; from slender, wiry stems that rise boldly erect to a height of eighteen inches, depend the inverted chocolate-crimson flowers with their central boss of yellow anthers. The flowers have not the showiness of some others, yet they are nevertheless of interest, because their type of beauty does not obtrude itself upon us.

How rarely do we find our native orchids represented in gardens even where hardy plants are made much of. All are interesting, some have a beauty that can rival much cherished exotics and the shady dry-wall can hold no choicer natives. *Gymnadenia conopsea* is a familiar plant by the road-sides in chalky districts; its distribution being common to many parts of England, and even more readily met with in Scotland. It throws a simple stem, some twelve to twenty-four inches high, and surmounted by close packed, elongated spikes. The flowers are arranged regularly on all sides, like a miniature flue-brush, of neat and formal appearance. The colour is a warm rosy-purple, unstreaked, unspotted, and unblotched. *Orchis maculata*, in its general habit of growth and flowering, resembles the last-named. The leaves are, however, characterized by having a dark coloured stain or blotch in the centre of each. The flowers are variable in colour, pale lilac is the normal shade, but white forms are quite common, and every intermediate link connecting these may be found in a single colony when growing wild.

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Listera ovata is also found in quantity on chalk soils, but its flowers are more curious than showy; the colour is wax-green, while in the leaves it suggests *Veratrum nigrum* in miniature; the latter are stem-clasping, through which appear to spring the spikes that carry the flowers on the terminal points. The system I followed in bringing these orchids into the wall garden was to select the best shades when in flower, a long blunt knife was used to cut them out in circular sods, about five or six inches deep, and of a like diameter. In this condition they were planted either on the wall-top or at the foot, in colonies; where a roomy joint occurred above ground level, the sods were reduced in size to admit of easy planting. Generally, the flower heads were smaller the following year, but afterwards there was little to choose between those in the original colony and the imported examples in the wall garden. Soil is not of so much moment, as I had them succeed equally well in the chalk soil of the district and again in a mixture of peat and decayed leaves.

Money-wort or Creeping Jenny (*Lysimachia nummularia*) is an aggressive native that gives excellent drapery in the wall. Planted at the top, it brooks no obstacle, nor stays its progress till it envelopes the wall in a sheet of green, the stems studded with the golden blossoms that come in pairs at the nodes, where the leaves originate.

Campanula glomerata is a success in the shady wall, with big clustered heads of warm purple. In marked

contrast to this is *C. rapunculoides*, which must never be tolerated in or near any wall garden. It is easily recognized by the Foxglove-like arrangement of the flower stems, and the thickened, fleshy nature of the underground stems. A most vicious plant, it asserts itself to the exclusion of everything that is desirable. For the charm of its pretty blue and white-eyed flowers, the wild Forget-me-not should have a place ; while in company with it we expect to see the bulbous *Saxifraga granulata*, or better still its double form.

A shrubby plant of singular beauty for a cool site in the wall, where the head could find the sun, would be *Vaccinium vitis idæa*—the Cow-berry. It forms a short bush on upland moors with pendulous flowers of waxen texture, the lip cleft in four spreading recurved lobes. The colour is creamy-white, with a bright suffusion of pale crimson. Succeeding the flowers are clusters of attractive fruits, resembling in miniature those of the Honeysuckle. When mature these are bright coral red, but as they are not all advanced to this stage at the same time, the gradation of tints renders it even more attractive and its effect in autumn is equal to anything we have among flowers.

Salix reticulata has no merit as a flowering plant, but it is so quaint and distinct among Willows and withal such a rare, wee native, that everyone becomes enamoured with its prostrate stems and oblong leaves. The netting or veining appears as delicate silver over a corrugated surface of green. I believe it is

only found wild on some of the Scotch mountains, in exposed open places. I find it makes good progress in a compost of peat and loam in a shady wall garden. The short prostrate stems hug the wall-face, whilst the leaves spread out flat, and in this way the delicate veining can be examined in close detail.

In the foregoing notes I have comprised a selection of what is representative of the best of our indigenous flora; some equally good and perhaps better known subjects are probably omitted. This may either be due to oversight or want of space, as it is impossible here to do justice to all in detail.

British ferns call for different treatment. Their natural home is the cool sides of glens, or the deeper recesses of shady banks, and ravines. Some favour open, sunny places in woodlands, like *Blechnum spicant*, or like *Polypodium vulgare*, can find sustenance perched upon the limbs of other trees, and one or two are frequently found matted in colonies on the face of some old wall. The wall garden in shade offers an exceptional opportunity of bringing these within reach of our daily incursions, for any of them may be grown to advantage under the conditions we are considering, making no exceptions, for even *Asplenium trichomanes* and *A. ruta-muraria*, that frequent the rotten courses of solid masonry, often where they receive a large amount of sun, find congenial quarters when given the higher, dryer courses to themselves. Then, if we have walls whose size cannot be dwarfed into insignificance

by plants of large growth, the Royal Fern, *Osmunda regalis*, though addicted to moisture to the extent that we usually class it as a bog-plant, finds every want satisfied in the cool wall-foot, in the moister counties of these islands. This is the ideal place to grow this noble fern.

A comparative selection of varieties of both British and exotic species is given in the tabulated list on page 85, where the indigenous kinds are distinguished from the other group, so as to render unnecessary a duplicate list for the shady wall when exotics are planted by themselves. The varieties of some kinds (species) are exceedingly numerous. Especially is this so among British ferns, that it is not surprising to find many cultivators place rarity in front of every other consideration. While one dare not always be dogmatic in matters of taste, it seems clear to me that the inclusion of many of these fanciful varieties among native types is entirely wrong, and likely to bring our work into ridicule. Therefore, I contend that we should have only wild species here, and this also from æsthetic reasons : the strength and purpose that are characteristic of the Male Fern, with the grace and elegance of the Lady Fern, are types of simple, yet absolute beauty, restful and satisfying under every condition. Beside these, many of the plumose and crested forms appear uncouth and extravagant, their relation to the type being in the nature of caricatures or monstrosities.

A LIST OF FERNS FOR WALL-GARDENS.

Botanical Name.	Common Name or Description.	Average height in feet.	Soil.	Position or Aspect:
*Adiantum pedatum	N. American Maiden-Hair	1-1½	loam, leaf soil	shade, cool .
Allosorus crispus	Parsley Fern	½-¾	loam, grit	" "
Asplenium adiantum nigrum	Black Maiden-Hair Spleenwort	½	loam, leaf soil	shade, sheltered
" ruta-muraria	Wall-Rue Spleenwort	½	limestone	part shade
" trichomanes	Black Spleenwort	¼-½	or chalky	in dryest
" " cristatum	Crested Spleenwort	¼	loam	places of wall
Athyrium filix-foemina	Lady Fern	1½-2	loam and leaf soil	part shade,
" " Edwardsii	dwarf crested	1-1½		or shade.
" " corymbiferum	crested	1½-2		any part
" " setigerum	bristly like	1½-2		of wall
" " regale	erect, crested	2-2½	loam	where roots
" " Victoriae	Queen of Lady Ferns	2-2½		are cool.
Blechnum spicant cristatum	crested Hard Fern	1½-2½	loam	shade or
" " trinerrio-coronans	" "	1½-2½		part shade
Cetarach officinarum	Scaly Fern	1½-2½		part shade in
" " crenatum	crested form	1½-2½		upper courses
Cystopteris alpina (Regia)	Alpine Bladder Fern	1½-2	limestone or	part shade in
" fragilis	Slender Stalked Fern	1½-2	chalky loam	upper courses
" montana	Mountain Bladder Fern	1½-2	loam, leaf	shade in
Lastrea filix-mas	Common Male Fern	1½-2	soil and	upper wall
" Æmula	Hay-scented Fern	1½-2	grit	courses
" dilatata	Broad-Buckler Fern	1½-2	loam and leaf soil	part shade
" montana	Mountain Buckler Fern	1½-2		or shade.
" pseudo-mas	The Marsh Fern	1½-2		any part of
" thelypteris		1-1½		walls where
				roots are
				cool.

* Indicates those that are exotics.

Botanical Name.	Common Name or Description.	Average height in feet.	Soil	Position or Aspect:
*Lomaria alpina	Creeping Lomaria	1-1½	loam, leaf soil	part shade
* " procera	tall	1-2	"	wall-foot
Osmunda regalis	Royal Fern	2-3	peat, loam	" " moist
Polypodium calcareum	Limestone Polypody	¾	chalky loam	shade, dry
" dryopteris	Oak Fern	1½	leaf soil, loam	deep shade, cool
" phegopteris	Beech Fern	1-¾	"	"
" vulgare	Common Polypody	1-¾	chalky soil	parts hade, dry
" " cambricum	Welsh Polypody	¾-1	"	"
" " cristatum	crested	¾-1	leaf soil, loam	" cool
" " multifido-cristatum	much branched	¾-1	"	"
" " trichomanoides	much divided	1-¾	"	"
*Polystichum acrostichoides	Christmas Fern	1-1½	loam and leaf soil, with or without chalk	shade or part shade, up to half-way line
" aculeatum	hard Prickly Shield Fern	1½-2		
" angulare	soft Prickly Shield Fern	1½-2		
" " acutilobum	divided, sharp pointed	1½-2		
" " divisilobum	much divided	1½-2		
" " plumosum	long, overlapping, moss-like	1½-2		
" " parvissimum	divided	1-1½		
" lonchitis	Holly Fern	1-¾		shade
" " munitum	American Holly Fern	¾-1	loam, leaf soil	"
* Scolopendrium vulgare	Common Hart's-Tongue	¾-1	"	sun or shade
" crispum fimbriatum	divided	1-¾	"	varieties
" " grandiceps	larger	¾-3	"	best in
" cristatum	crested	1-1	"	shade up to
" cristulatum	more crested	1-¾	"	half-way line
* Woodsia ilvensis	American Woodsia	1½	"	part shade
* " obtusa	Blunt leaved "	1-¾	"	near wall-top

* Indicates those that are exotics.

CHAPTER X

UPKEEP OF DRY-WALLS

IN wall gardening routine work is much less laborious than in allied branches that also concern themselves with the welfare of Alpines. Certain broad rules require to be observed in order to facilitate the establishing of the wall, and also to ensure its continued success. Fortunately compliance is easy; more generally it becomes a pleasure, and we seek to anticipate the seasons wherein the wall-occupants require attention at our hands. I will take first the routine work that presents itself at various seasons of the year, in walls of recent erection, and those long established, passing later to note in detail any special treatment applicable under certain conditions and with definite subjects. Once a dry-wall has been built and planted it will usually demand a greater amount of attention the first season than in subsequent years. To begin with, plants of every kind, as we all know, take time to establish, and where our object, as here, is to produce a permanent feature over many years, the little attention necessary should be forthcoming at the proper season, so that the wall may start

away full of vigour and promise. Until it is thoroughly settled and solidified and the plants exhibit evidence of progress, water must be supplied in adequate quantities. This question is, however, so intimately bound up with the nature of the soil that some discrimination on the part of the cultivator is called for here. Elsewhere throughout this work I have dilated with some force upon the baneful influence that moisture exerts upon alpine plant life if given in excess during winter, the obvious reason being that, not only do these conditions lower the temperature of the soil, so that root activity falls into abeyance, but the vegetative parts also, missing the beneficent influence of sun heat, communicate this knowledge to the green cells, where it produces torpor. They in turn inform the transpiratory cells, whose function is entirely regulated by the degree of activity set up between the roots and the green cells. Hence the vitality of Alpines in captivity is lowest when the external conditions are at the worst. We get the knowledge of alpine habitat, either at first hand or from intelligent travellers, of how the sources of perpetual moisture in alpine and arctic regions become frozen up at the approach of winter, the moisture about the plants quickly drains away, immediately the alpine heights are covered with snow and the alpine pastures and all that they contain lie snug and warm for many months. The dawn of Spring melts the snow, exposing the vegetation, which responds instantly to the warmth; the moisture from the melting snow

trickling down the hillside fosters the most rapid development; hence the striking phenomenon of alpine regions is that plants flower and mature seeds all in a few short weeks. In cultivation we endeavour, by the use of free drainage and gritty soil, to reproduce these dry rooting conditions of their native home. Indirectly this gives a warmer soil. We cannot, however, press this to too great extremes or our plants would as readily burn up in summer, or alternately we would have continual recourse to the garden-hose, and this we can almost entirely dispense with. To ensure that roots are not adversely affected by drought, we provide soil generously, on the rock garden by an increased depth, while in the wall garden similar provision is made so that roots may extend behind the wall-face for at least two feet in a horizontal direction. Given these, the dry-wall will demand water artificially the first season, and in subsequent years should a period of great drought tax the wall unduly, then recourse must be had to the same agency. My practice is to attach a hose-pipe to the garden hydrant, and at the free end fix a fine rose from a water pot of Haw's pattern. These give an exceedingly fine spray, and with such an arrangement it is possible to cover quickly a large area without washing the joints free of soil, for this must always be guarded against in all watering by hand. When I am confident of the stability of the wall, I prefer to leave the hose unattended, arranging it so that a trickle of water passes down behind the

wall. This saturates the soil into which the roots penetrate, for unless this condition is assured watering is so much labour wasted. Every half-hour or more the hose-pipe is moved to fresh ground until the whole area has been treated in this way. With dry-walls, for the first season, I also like to go over them morning and evening and spray the face of the wall with clear water. A fine jet on the garden syringe is a capital tool when the area is small, but with extensive walling a knapsack sprayer is both expeditious and economical. This practice is, however, only essential up to the time the plants take freely to the wall ; its action promotes the early formation of roots, while in the case of ever greens, where a loss of balance generally arises in transplanting, to the disadvantage of the roots, and the vegetative parts transpire moisture more rapidly than the roots can replace it in their mutilated condition so that the former become flaccid on exposure. To correct this is our aim in daily spraying. Once this object is attained any watering of an artificial nature should be directed behind the wall, and only water naturally deposited suffered in contact with the wall-face.

This matter of watering is so intimately bound up with old masonry walls, that I may here profitably digress to consider this aspect of wall gardening. Earlier in this work I gave instances of spontaneous growth establishing itself in derelict works built of stone and mortar. These natural examples are the

work of time ; the slow disintegrating of mortar, combined with the gradual accumulation of wind-blown *débris*, accompanied by seed, the tardy, uncertain process of germination, and eventually the stern combat in which the strong and vigorous survive, all this can be accomplished in a single season with greater degree of certainty and happier results when the amateur wall gardener sets out on well-defined lines, and fosters Nature's incipient efforts to their logical conclusion. Some years ago I treated a forecourt wall of this nature, built of brick and mortar,—the material used in its building is immaterial as the advantage always lies with stone. I give the details of my experience, as the process is similar in every case. The wall in question, when I took it in hand, was largely occupied by short tufted grass that ran along the courses together with a quantity of the yellow Hawkweed. First this weedy growth was removed and the courses cleared of loose matter ; the joints were dealt with in a similar way, but here greater liberty was taken with the wall, and occasionally where the joints offered least resistance they were cleared to a depth of three inches. With the courses this would be more dangerous, as it would weaken the wall to a much greater extent. The next problem was to introduce soil. We adopted a compost similar to what is used for bedding plants, consisting of loam, leafsoil and sand, the whole being passed through a half-inch sieve. This compost was then introduced into the vacated courses and joints,

being pressed in firmly, yet leaving enough space for the seed to follow. The latter was home-produce, gathered the previous season from occupants already established in a dry-wall of earlier building. This seed was mixed with about four times its own bulk of soil and diligently introduced to the wall in mere pinches; no joint or single course of brick was overlooked. The seed was sown in February, an ideal month for south or coastal districts, although a month later would be immaterial in the colder midlands and north. By the beginning of March the Cotyledons (seed-leaves) of many were clear of the soil, and where an excessive number of seedlings appeared together, this stage was recognized as the moment to reduce them. It may occur to some that the novice may here encounter serious obstacles in not being familiar with plant characters in the seedling stage, but the difficulty is really only apparent, for a glance over any square yard of walling at this stage demonstrates that each kind has some little characteristic of its own, and before we have gone far we can differentiate between portly, medium or slender cotyledons, probably without knowing what plants they represent. Enough for the youthful wall gardener to know that no one kind is being sacrificed at the expense of its neighbours, which might readily occur when this initial understanding is dispensed with.

With mortar walls of this nature, especially those in the sun, it is imperative that adequate moisture be



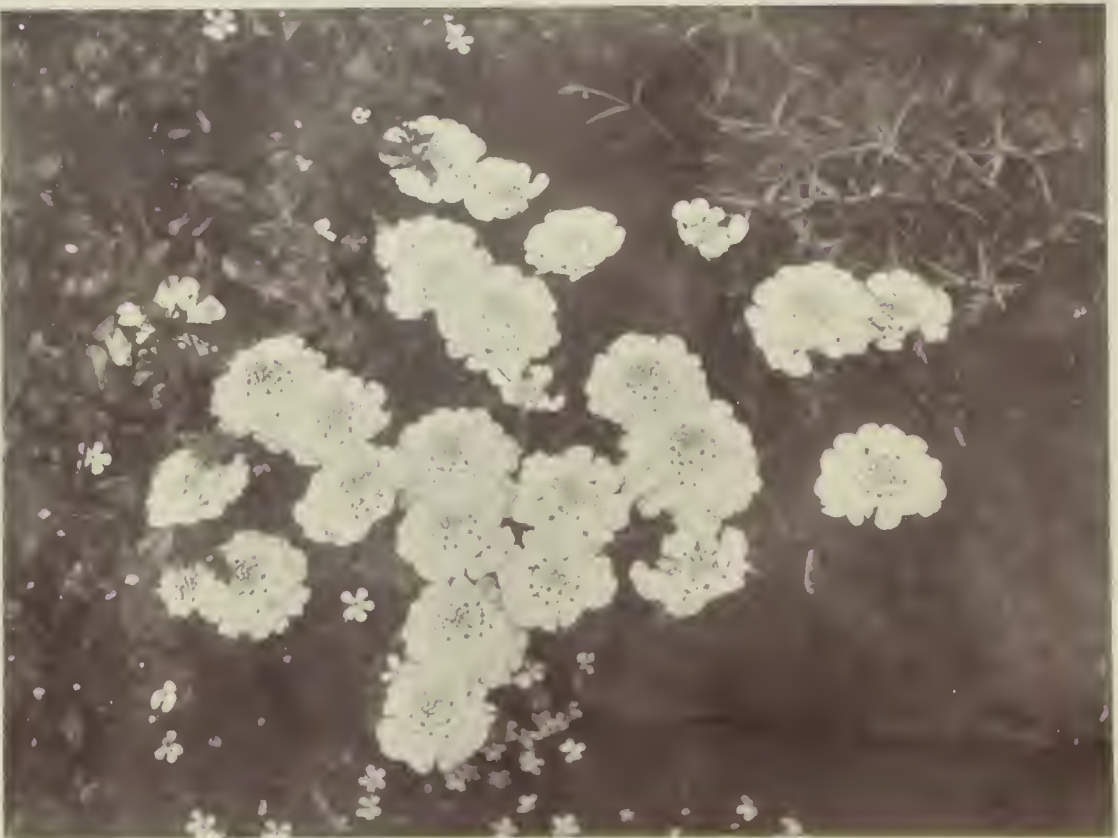
ROSES AND SAPONARIA BESIDE GARDEN STEPS. IN THE GARDENS OF WARREN HOUSE.

PLATE XXIII.



THE SHEEP'S SCABIOUS (*JASIONE JANKÆ*).

PLATE XXIV.



IBERIS GIBRALTARICA.

given the seedlings up till the ensuing winter, for unlike the wall garden reared with no other object than this in view, there is here no body of soil behind to give access to and encourage the roots forward in their quest for moisture. In walls of this kind only plants capable of enduring arid conditions need be attempted, although even in this way it is difficult to give a limit, for in masonry walls, more than in any other, individual successes depend largely upon what the roots are able to lay hold upon. Not far from here is an old brick wall full of *Campanula pyramidalis*, in some cases the same root flowers for several years ; in another garden seedlings of *Buddleia variabilis* have established themselves in what is little more than a narrow crack, while in a sunny brick-wall under my own charge seedlings of the wild Primrose appeared of their own accord and developed into specimens that bore no trace of the cramped and starved position that supported them.

Reverting to routine work incidental to established dry-walls, I may observe that only in the case of plants of conspicuous vigour should their energy be taxed the first year in seed production. There is never much harm done when only a few pods on each plant are ripened, but when flowers are allowed to fade and mature seed indiscriminately, the plants suffer to a marked degree. The better system is to go over the wall regularly, cutting away all spent flowers that are easily handled. In the case of tiny kinds like *Arenaria*

balearica, *Campanula pusilla* and *Erinus*, I never interfere with them, for the seed when ripe will often find curious lodgment and seedling plants appear in unexpected places often better and more effectively placed than any skill of ours can contrive. This plan followed up systematically until October or November leaves few stems of annual duration to be removed at that season. It is then advisable to make sure that coarser plants are not encroaching upon the liberties of smaller neighbours, and I favour late autumn for reducing the size of the former when necessary, rather than delay the work till spring, for given a mild winter plants are able to make up part of the leeway lost, whereas if left till spring they may be too weak for any further effort.

The spring season brings fresh activity into the wall garden, when a general inspection takes place; damaged or broken plants are removed, wayward growths of trailing or prostrate subjects are corrected, and if necessary directed to a joint or course by means of a wire pin, thus securing them from further injury, while in some instances roots will form and the plant spread in this way. This is also the time when we act upon the deductions made and noted while the wall was in flower. It may be some colour gave offence or we may want to enlarge upon some combination that gave unusual pleasure. Vacancies may possibly have occurred and will want renewal, while those who travel in by-paths of informal gardening acquire a fund of

new things garnered in their travels among friends. These, if entrusted to the wall garden, will always carry with them pleasing memories and associations, and in this way the wall garden acquires a deep significance to its owner.

CHAPTER XI

A CHAPTER ON PROPAGATION AND PLANTING

IN wall gardening we must ever bear in mind that the object in view is to grow beautiful plants and display them to the fullest advantage. We have further to remember that no matter how familiar we may be with the different characters of plants or how varied our experience may have been among them, instances are almost sure to occur later where some of our carefully conceived plans have not given quite the result intended. We may also want to give effect to some fresh idea, or it may be that some accidental grouping seen in the garden of a friend has won our affection and we wish to repeat or enlarge upon it (see page 63). Then as the wall matures we may expect to find plants appearing unexpectedly where we have neither planted nor sown; sometimes it is a wee *Dianthus* like the Cheddar or Maiden Pink, or it may be hanging tufts of *Aubrietia* or *Gypsophila*. Perhaps some half-wild thing like *Antirrhinum* or Wallflower will boldly claim a place. More frequently, however, will it be *Erinus alpinus* in colonies, the toothed leaves close pressed against the sunny wall.

An hour I always anticipate in the dry-wall's career is when choice dainty bellflowers scatter their seed about; the tiny plants appear hugging the wall in closest embrace, with blossoms springing forth from every angle, the dainty bells reflect in size the qualities of the soil from whence the roots draw their support. My experience with this inimitable subject is perhaps worth recording, although it has probably been repeated in other gardens. When I first grew *Campanula pusilla* I procured the type with its flowers of dark blue, and also the white form; the first season these came quite true to colour, gradually, however, self-sown seedlings made their appearance, until quantities of it were represented both in dry-wall and rock garden. Eventually an intermediate shade appeared, of exquisite lavender colour, and in later years this colour was repeated in various shades, some pale, others deeper, yet none so dark as the type. These spontaneous examples incite the enthusiast in wall gardening to increase his plants, not only with the view of replenishing his own wall garden, but as he becomes enamoured with his earlier success, the desire grows to enlarge upon and extend the idea to other parts. Then it enables one to have always in reserve something one can offer to friends in exchange for what we do not already possess.

One of the charms that attract in wall gardening is the knowledge that amateurs can perform all the work themselves, even to the actual building, with

help from man or boy to move anything heavy in the way of stone or soil. Not the least interesting operation, because it reveals new aspects of plant lore and gives us insight and experience that after all cannot be garnered from text-books, is that associated with plant propagation. Three ways of increase present themselves to the amateur, two of these give plants in all respects similar to those we started from; in the third, namely, by seed, we cannot always be certain that the produce will be identical with the parent, the variation will generally be greatest in the colour of the flower. At times, however, it modifies their form, as well as that of the foliage, and it may also increase or shorten the stems that support the flowers. It is this knowledge put into practice that is so valuable an asset in the hands of hybridists, for by following a carefully devised system he reduces to moderate proportions the element of chance that in Nature is all dominant. In this way may arise many lovely hybrids; the *Saxifraga* family, to name but one instance, contains a goodly array of hybrids, the majority of which are among our most cherished hardy plants.

Taking first the methods whereby we increase those plants already in our possession, we note that division is the easiest and quickest method; this simply amounts to parting a plant into two or more pieces having roots attached, and by choosing a favourable time, these may be planted direct with every hope of success—early autumn and late spring are recognized seasons

for the work. This method, however, is quite impracticable with plants established in the wall garden. Hence we revert to the second system : in this we take off short single growths, or shoots, form them into cuttings and place in a suitable rooting medium in order to induce roots to form. This process, with a few notable exceptions, may be applied to all plants of alpine growth. If one has large experience of the work no definite season need be observed, but until we attain this proficiency it is well to confine the practice to late summer and the early autumn months, beginning about mid-July and finishing with the first days of October.

The necessary materials we require consist of well-drained pans or pots, soil of a light gritty nature, and a suitable frame into which the cutting pans are placed, until such time as they emerge with their quota of rooted plants. The latter is important, because wherever this class of plant is grown, a special frame should be early established and reserved entirely for their needs. Any garden frame will answer our purpose, but I prefer a portable box-frame, one with securely boarded-in bottom has distinct advantages, as it can be moved bodily when necessary. I favour a size carrying a light measuring four feet by three, having an internal depth of nine inches in front, and about fifteen inches behind. This I fill rather more than three parts with sifted ashes from the stokehole, and into it I plunge the cutting or seed pans almost to the rims. These,

if watered before plunging, will draw indirect advantage from the cinders, which help to maintain an equal degree of moisture. Hence water is only necessary at long intervals, a consideration of no mean order when the enthusiast attends personally to their wants. Pans intended to receive cuttings should have several pieces of broken pot placed over the hole as drainage, covering this with some rough material like moss, that keeps the drainage clear. Then fill moderately firm with a compost of two parts loam to one each of sand and leaf soil, and surface over with some sharp sand. The cuttings are then inserted an inch or more apart, using a blunt pointed stick or dibber, carefully observing that the cutting is firmly secured in the soil, particularly at the point where it has been severed, for any vacuum here retards rooting, and may not unlikely entail loss.

Then as regards the kind of cutting, a few points are worth remembering. Generally, those with firm, woody shoots like *Acantholimon* are best pulled in the way of Garden Pinks, removing a few of the lower leaves without any further trimming from the knife. Kinds like Alpine Phlox, *Aubrietia* and *Campanula*, however, root quite readily if prepared as ordinary cuttings, that is, they are cut square off below a leaf or set of leaves. The time these cuttings take to root also varies, the last named group for instance are usually ready for potting up singly by the end of August or September, that is, if they have been put in during

July ; *Acantholimon*, *Lithospermums*, several of the spiny *Saxifrages*, *Cistus* and *Helianthemums* are never safely disturbed before spring.

We have now to consider the third means of increase, namely, propagation by seed. Our plants in dry-walls and rock gardens are generous in this respect. We also have gifts of seed sent by friends, or we may be tempted to try something unfamiliar that we come across in seedsmen's catalogues. Without distinction, seed of Alpine plants is best sown as soon as harvested, for if it is dried and stored away till spring the outer shell hardens and some kinds will lie dormant for months. This is a frequent source of annoyance with the seed merchant's samples. This, however, we must put up with, as they rarely send out the current season's crop before the following spring.

The actual details of seed-sowing differ slightly in detail from the process followed with cuttings. Here we must guard against the insidious presence of liverwort and moss that invariably appear on the surface of seed-pans when long confined. A compost similar to that advised for cuttings is suitable, but I always add some crushed mortar rubble, chalk or brick, and divide the compost into two lots, one being made coarser by the addition of some rough crushed sandstone or brick. After the drainage in the pans is covered with moss, they are half filled with the coarser compost, then the level is brought up to within a half-inch of the surface with the finer material, the surface being then levelled

to receive the seed. When the required number of pans are prepared, I stand them in a vessel containing boiling water ; the water is not allowed to enter from the top, but must rise by capillary attraction from below. In this way all vegetable and insect life is destroyed and the seedlings that eventually appear will be the product of what we sowed. After the pans have had half an hour in the boiling water they are stood out to drain and cool, the seed is then sown, giving only the finest covering of soil or sand, that will vary in depth according to the size of the seed. Some kinds, like *Ramondia*, *Campanula* and *Erinus*, that have very small seed, I never cover at all.

When the pans are finished and labelled with name, date and source complete, they are placed in a greenhouse having a temperature not exceeding 50° F., each pan being covered separately with a small square of glass. A garden frame placed against a wall or building with a south aspect, or a box-frame set on a hotbed of slow fermenting material, as stable manure and leaves, answers the purpose quite as well. Indeed, the only advantage of the greenhouse is that it hastens germination, for almost directly afterwards the pans are placed in the special frame, where the conditions more closely resemble those that prevail in the open ; hence the seedlings make healthier progress. They are firmer, sturdier, more typically alpine.

When the seed leaves show clear of the seed-pods is the time to transfer them, while the cover glasses

can also be dispensed with. In any watering that becomes necessary during the early stages, the pans should be placed in a vessel of water and the soil saturated from below, in preference to supplying by an overhead process. In this way water is only necessary at rare intervals. Some Alpines make rapid growth, and are large enough to handle in a few weeks' time, when they are transplanted to shallow boxes of gritty soil, placing them an inch or more apart. Slow growing and small kinds like *Ramondia*, *Sax. longifolia*, *Gentians* and *Androsace* must be carefully watched for liverwort and moss, removing this at intervals with a pointed stick, until such time as they are large enough to handle for transplanting to fresh soil.

The stage when cuttings are nicely rooted to the degree that admits of them being potted up separately, and in the case of seedlings when they are making progress in their transplanted quarters, is recognized as furnishing the best material for permanent planting or making good vacancies in the wall-garden. In both cases growth has been uninterrupted, the stunted, starved condition that results from prolonged exposure in pots is here absent ; hence, when carried direct to the wall-garden and given ordinary attention afterwards, scarcely any apparent check will follow. Planting into an established dry-wall is not the everyday process some suppose, for this work a long thin piece of narrow, flat iron makes a good tool. Open the joint or course wide where it is intended to introduce

a plant, lay in a little fresh soil, then the plant, and finally cover in moderately firm with some good fibrous loam. The object must be to get the roots well back into the wall, when their success is almost certain.

Raising Alpine and rock plants either by seed or cutting is a most interesting and satisfying hobby, bringing the cultivator into direct contact with his charges. We learn to recognize them by the leaves alone, and even in the baby stage we strive to trace the varieties that are ever present in plants raised from seed, and when this is pronounced in the foliage, how eagerly we anticipate the day when first the flower unfolds, in the hope, most often rudely shattered, that something better than our collection already contains will be our reward. In order to render the foregoing notes more serviceable to beginners, I have starred all plants in the lists given throughout this book that will flower the second season to that in which seed was sown, that is, seed sown in January or February of this year would give plants to flower next year.

A LIST OF SAXIFRAGES FOR WALL-GARDENS,

Name.	Section.	Flowering Season.	Chief Colours.	Position or Aspect.
Aizoon Balcana	Euaizoonia	May, June	white, red spots	} sun, or very light shade
" Gaudini	"	June	white	
" la graveana	"	"	white	
" minor	"	May, June	white	
" notata	"	June	white	
" rosea	"	"	bright pink	} part shade cool, in sun some moisture, in shade
Andrewsii	London Pride	June, July	white, red spots	
Apiculata	Kabschia	March, April	lemon yellow	
Aspera	Trachyphyllum	July	creamy white	
" bryoides	"	"	"	
Boydii alba	Kabschia	April	white	} cool, in sun cool, in sun, or part shade
Burseriana	"	March	white, red stems	
" Gloria	"	"	"	
Catalaunica	Euaizoonia	June	pure white	
Cochlearis	"	"	white	
" major	"	"	"	} " " " " " shade
Cotyledon	"	June, July	"	
" pyramidalis	"	"	white, pink spots	
Crustata	"	May	creamy white	
Cuneifolia	London Pride	May, June	white, in sheets	
Decipiens	Mossy	May	white	} sun, or part shade sun shade
Diapiensoides	Kabschia	June	white, pink spots	
Dr. Ramsey	Hybrid. En.	"	creamy white	
Exarata	Mossy	May, June	soft yellow	
Elizabethiæ	Kabschia-hybrid	April	white and pink	
Geum crenata	London Pride	June	"	shade

Name.	Section.	Flowering Season.	Chief Colours.	Position or Aspect
Geum elegans	London Pride .	June	white, red stems .	shade
Granulata fl. pl.	Nephrophyllum .	May, June . . .	double white . .	"
Hostii	Euaizoonia . .	June	white, pink spots .	sun
Hypnoides	Mossy	May, June . . .	sheets of white . .	shade
Kolenatiana	Euaizoonia . .	June, July . . .	white, pink spots .	sun
Lingulata Bellardi	"	"	white, in arching plumes . .	"
" lantoscana	"	"	similar but shorter dense arching plume	"
" " superba	"	"	white, in pyramids	"
Longifolia	"	"	white, heavy spots	"
Macnabiana	"	"	snowy white . . .	cool, part shade
Marginata	Kabschia . . .	April, May . . .	white, massive	sun
Montavoniensis	Euaizoonia . .	June, July . . .	sprays	shade
Muscoides	Mossy	May	shades of red . .	cool, in sun
Oppositifolia alba	Porphyrious .	March, April . .	sheets of white . .	or part shade
" splendens	"	"	sheets of crimson .	cool, shade
Retusa	"	May, June . . .	rosy purple . . .	shade
Rotundifolia	London Pride .	June	pinkish, distinct	sun
Salomoni	Kabschia . . .	April, May . . .	large white . . .	shade
Sponhemica	Mossy	May	sheets of creamy white . . .	sun
Trifurcata	"	"	white	shade
Umbrosa	London Pride .	"	white, spotted . .	"
Valdensis	Kabschia . . .	"	white, in delicate plumes . . .	"
Wallacei	Mossy	May, June . . .	sheets of white, large . . .	sun
		"		shade

CHAPTER XII

SEASONS OF DRY-WALLS

A WALL GARDEN that has been established for some years is rich in incident, and equals in this respect any other part of the garden. Its educative value, as we have seen, is also great. Here it is readily seen how plant development is influenced both by soil and position. Coolness and moisture are most in evidence at the wall-foot, where plants are invariably greener, more leafy, with a corresponding increase in size in the other parts, than those in the courses higher up ; while those in the highest courses or actual wall-top are generally shorter, more contracted in all their parts. Then if we compare their flowering capabilities with the position each occupies, we find this occurs in inverse ratio to the exuberance of leaf and stem ; that is, plants of a similar kind in wall-top and wall-foot will generally reverse positions as regards the quantity and colour of the flowers. Hence the primary object in all gardening is to allocate plants to such positions and conditions as will enable their distinctive features to attain the maximum development. This course has been generally followed where I have thrown out

suggestions, either with regard to plants or positions in wall gardening; in this way the amateur is assured upon a course that has already been tested and proved. With experience in this fascinating branch of gardening the enthusiast soon discerns that it holds few arbitrary rules that may not be broken, if not on his part, then almost in surety by the plants themselves.

The extent to which the wall garden fosters the natural characteristics of plants, as exhibited by the leaves, is nowhere more apparent than in those showing some tint of grey. This protective agent varies to a remarkable extent, and may be accepted as indicating that the plant in question is a sun-lover. At all events it is in the hot exposure of the sunny wall that this plant characteristic reaches its highest development. In some instances this covering feels silky to the touch; in others it appears woolly or felt-like, while in others a wax-like coating overspreads the leaves as a dense glaucous bloom. The effect against a dull wall of stone is very noticeable in winter with those that are ever-green; then at other seasons, even where parts of the wall are in flower, these soft neutral greys are invaluable in correcting over-gaudiness in certain colours. This idea also embraces plants with fleshy leaves, like *Sedum* and *Sempervivum*, in sunny walls; the rosettes are more tightly compressed and often highly coloured, and some have a crystalline effect under sunlight.

A feature of uncommon beauty is present in the foliage of many *Saxifrages* under normal conditions. A thin

film of lime is deposited over the leaves, chiefly along the margins, and this encrusted appearance gives them a silvery effect. Then in the sunny exposure of the wall-garden many of these Silver Saxifrages develop ruddy tints of purple, crimson, and faint traces of violet-blue, that in combination with the encrusted feature enhances their beauty. Hence a wall garden of this nature with a liberal quota of these Saxifrages is something to cherish in our gardens for this winter effect alone. Common kinds like *Aizoon* and most of its varieties, but particularly *Gaudini* and *notata*, will often rival rarer kinds like *Griesebachii* in this unique colouring. This again is repeated in big kinds like *Macnabiana* and *montavoniensis*, and where every gradation in size is represented between *cochlearis* and *longifolia*, the sunny wall garden has every appearance of being studded with these as in some fine jewelled mosaic; the Saxifrages being most prominent, will represent its brightest gems.

The evergreen character of wall plants holds our interest in another direction. *Thymus lanuginosus* is an instance; it forms a deep, springy carpet of hoary, grey-green leafage, draping the wall face for a yard or more. I have never yet seen the plant in flower; its charm, however, lies in its delicious scent. It is difficult to inhale this by direct handling of the plant, but if lightly rubbed the air becomes charged with its perfume, and few natural odours give greater pleasure. This virtue of fragrance is again strongly in evidence in

Mentha requieni, a tiny, creeping, box-leaved evergreen that simply reeks of peppermint, and loves to travel up the wall-face in half shade. In the grey-leaves of *Santolina* lurk a pleasant odour that is readily imparted to the air as we brush past its billowy masses of silver grey as they disport themselves from the ramps that support our garden steps (page 111). These features show that the wall garden is not without interest and attraction in winter. The examples chosen might be definitely extended. I have thought best to arrange in the form of tables, at the end of this chapter, a list of plants all giving good effect where only foliage is in view ; in addition, the majority are also esteemed for their flowers.

Our wall gardens need not be quite destitute of flowers in winter, any more than other parts of the garden. I noted earlier in this work the distinct value of *Iris stylosa* as a means of breaking the stiffness of the wall-foot, with its leaves ; the flowers often appear before the close of the year, or else they greet us before it is far advanced, its season extending from December to March. It requires time to establish, but given a poor soil and stony root-run to begin with, this end is appreciably hastened.

It is often possible to introduce some definite scheme along the wall-foot in such a way that enables us to grow the early bulbous plants that greet the opening year, and also a notable few that linger with us late into autumn. This need not amount to a regular



TERRACES WITH STEPS AND DRY-WALL FEATURES IN THE GARDEN SCHEME, COOMBE COURT.

PLATE XXVI.



COTTON LAVENDER (*SANTOLINA*) BESIDE GARDEN STEPS.

PLATE XXVII.



CYTISUS KEWENSIS AND *ARENARIA BALEARICA*.

border, indeed, it were far better to arrange them in broken groups, with an occasional clump extending some nine or twelve inches from the wall-line. In this way the informal idea of grouping initiated in the wall and repeated in the stone pathway would here be continued, and the harmony of the scheme be enriched by this co-ordination of ideas. Generally the soil for these bulbous plants should be a gravelly loam, two parts of the latter to one of gravel makes a suitable compost where the natural soil is unsuitable.

Where *Arenaria balearica* starts from ground level would be the place for spring flowering *Crocus*, like *biflorus*, *Imperati*, and *versicolor*. The evergreen carpet formed by the *Arenaria* keeps the blooms from soiling. A similar advantage is conferred upon the autumn kinds if they are planted below a low-growing mossy saxifrage. *Croci*, unlike other bulbs, require shallow planting, two inches deep is ample. Good autumn kinds are found in *speciosus*, *zonatus*, *medius*, *pulchellus* and *iridiflorus*; the flowering season is September to November. *Triteleia uniflora* and *violacea* both flower in late spring, but they are leafy all winter and require no such help. *Bulbocodium vernum* is different; it may be described as a spring *Colchicum*, and like all this tribe is quite naked at birth, hence a close carpet of Thyme or Phlox protects the flowers from soil splashing. *Colchicum Bornmulleri* is a true *Colchicum*, flowering in spring, and *Sibthorpi* and *speciosum* are big and handsome for the autumn.

Only vigorous plants need be employed as carpets with these, as their own foliage that follows later is heavy and would smother smaller plants. The rose, pink and white flowered forms of *Scilla nutans* are charming when backed against the wall-foot in late spring. Then advantage can be taken with the species of *Tulipa* that flower early and are altogether a greater charm and grace than the highly bred kinds we grow in borders. Species like *Clusiana*, *Kaufmanniana*, *Greigi*, *præcox*, *pulchella* and *sylvestris*, are delightful when seen springing from the wall-foot. A good plant that flowers in August and September is *Agapanthus mooreanus*. It is not strictly bulbous, but is a perfect replica of its big neighbour, so extensively cultivated as a tub plant. It is, however, much dwarfer, quite hardy and parts with its leaves in winter. An extra well-drained and warm spot should be given the Flower of the West, which also flowers in autumn. *Zephyranthus candida* produces crocus-like flowers amongst thickets of narrow, grassy leaves. *Muscarias*, *Scillas*, *Chionodoxas*, bulbous *Iris* and rare *Snowdrops* can all be represented where space admits. It may here be noted that by planting under walls of different aspects we anticipate or prolong the normal season according to whether they are in sun or shade.

Wall gardens in shade give opportunity for growing the garden forms of our *Wood Anemone*. The double white is a robust plant, but the blue-flowered varieties are first favourites. *Robinsoniana* is a delightful small

plant, with larger flowers than the type, coloured pale blue. Blue-bonnet is taller and stronger, and even larger flowers than the last, and in *Alleni* the big lavender flowers surmount leafy stems some nine inches high, making this the grandest plant of all. Here also will appear the Grecian *Anemone blanda* with inconstant coloured flowers that are either white, pink, or more generally some shade of blue, and often in flower as early as February, while as yet the pale green mounds of *apennina* show but little promise of the starry cloud of blue that is due in May. The latter comes from sunny woods of Italy, and must not be given too much shade. Hardy *Cyclamen* are enchanting wall plants, with pretty marbled leaves, lovely flowers, and later, the corkscrew arrangement of the stem with the drum-stick seed-pod attached. They revel in chalky soil, are easily raised from seed, and in this way quantities can be introduced to the wall-garden, where they should be left undisturbed. *Coum*, *ibericum* and *repandum* give flowers from December to May; then in autumn *europaeum* and *neapolitanum* continue the display. With the latter we can associate at the wall-foot *Erythroniums* and Chequered *Fritillarias*, and a particularly cool or moist spot would almost certainly give success with *Dodecatheons* and *Trilliums*.

At rare intervals beside the shady wall foot would appear big clumps of Christmas roses (*Helleborus*), with an occasional plant of the newer and taller

Name.	Height in Feet.	Prevailing Habit.	Foliage Effect.	Soil.	Season of Flowers.	Method of Increase.
*Geranium Traversii . . .	1 1 1 1 1 1 1 1 1 1	tufted . . .	silver grey . .	gritty loam . .	July . .	seed
Helianthemum lunulatum . .		bushy . . .	hoary grey . .	limestone . .	June, July . .	cuttings
*Leontopodium alpinum . . .		tufted . . .	woolly grey . .	" . .	June, July . .	seed
*Nepeta Mussini . . .		bushy . . .	hoary grey . .	sandy loam . .	June, Sept. . .	cuttings or division
*Onosma alba-roseum . . .	1 1 1 1 1 1 1 1 1 1	prostrate . . .	grey, hirsute . .	gritty loam . .	June, Aug. . .	cuttings
*Papaver alpinum . . .		tufted . . .	glaucous . .	sandy soil . .	May, July . .	seed
*Sedum brevifolium major . .		low mats . . .	mealy, rose . .	gritty loam . .	July . .	division
" corsicum . . .		" . . .	glaucous . .	" . .	June . .	"
" Ewersii . . .		trailing . . .	" . .	" . .	July, Sept. . .	"
" pilosum . . .	1 1 1 1 1 1 1 1 1 1	low mats . . .	downy green . .	" . .	May, June . .	"
" spathulifolium . . .		trailing . . .	glaucous . .	" . .	June, July . .	"
" spectabile . . .						
*Sempervivum arachnoides . .	1 1 1 1 1 1 1 1 1 1	tufts, erect . .	" . .	garden soil . .	Aug., Sept. . .	"
" noideum . . .		low mats . . .	cob-web . .	gritty soil . .	June . .	"
" Lageri . . .	1 1 1 1 1 1 1 1 1 1	" . . .	" . .	" . .	July . .	"
" montanum . . .		" . . .	green, purple . .	" . .	" . .	"
*Scabiosa ptercephala . . .		spreading mats . .	hoary grey . .	sandy loam . .	June, Sept. . .	cuttings
*Stachys corsica . . .		tufted . . .	silver grey . .	" . .	summer . .	"
" lanata . . .		spreading . . .	woolly grey . .	" . .	" . .	"
" lavendulæfolia . . .	1 1 1 1 1 1 1 1 1 1	tufted . . .	silver grey . .	" . .	" . .	"
*Tanacetum argenteum . . .		shrubby . . .	intense silver . .	" . .	" . .	"
" ancherianum . . .	1 1 1 1 1 1 1 1 1 1	erect, shrubby . .	glaucous . .	" . .	" . .	"
*Teucrium polium . . .		spreading . . .	woolly grey . .	" . .	" . .	"
Thymus lanuginosus . . .		" . . .	hoary green . .	" . .	" . .	"
" micans . . .		erect, bushy . .	silver tipped . .	" . .	July . .	division
*Veronica incana . . .	1 1 1 1 1 1 1 1 1 1	tufted . . .	silvery grey . .	limestone . .	June, Aug. . .	"
*Zauschneria californica . .	1 1 1 1 1 1 1 1 1 1	erect, bushy . .	hoary green . .	" . .	Aug., Oct. . .	division or cutting

* Indicates plants that may be raised from seed as described on pages 96-104.

Lenten roses. The foliage as well as the flowers give a good effect in such positions. *Erica carnea* and *Mediterranea hybrida* used in a similar way in the sunny walls would be bright with colour during winter and spring. With the various foliage effects that have been suggested, supplemented by the flowers of bulbous and other plants, there is abundant attraction in the wall garden to waylay our footsteps even in the depth of winter. With the advent of the flowering of *Aubrietia* the foliage aspect becomes almost swamped in the abundance of the floral wealth that breaks from the wall-face, one thing after another springs into flower and passes away to be in turn eclipsed by some fresh beauty; thus the glory of the wall garden covers at least four full months from early March until the end of June. After this there is a gradual contraction in the flowering areas; from some deep nook in the wall-face spring rounded bushes of the hybrid Bellflowers, *Haylodgensis* and *Profusion*, or, perched upon the wall-top, some of the saucer-shaped flowers of the *Carpatica* forms appear. Down the steep face of the sunny wall the silvery streamers of *Androsace lanuginosa* appear bejewelled with its umbels of bright flowers, suggestive of a wee bunch-primrose. *Pentstemon heterophyllus* unfolds its trumpet flowers along the spiky shoots, the blue flowers all but perfect in colour, except for a stray taint of magenta-purple. *Scabiosa pteroccephala* is still in flower during August. It is quite flat and very grey, and the big Scabious flowers are only upon

two-inch stems. *Sedums kamschaticum* and *pallidum* (spurium) are gorgeous with colour at this season, the first named bright orange-yellow, the last in three shades—white, pink and crimson.

In wall-top and steps glorious masses of colour are produced by Rock-roses (*Cistus*), Lavender and Hyssop, while in many odd places seedling plants of *Campanula pusilla* will be breaking into blossom and will continue till the end of September. Two of the most enjoyable plants in the wall-garden during autumn are the Californian *Pentstemon* (*Zauschneria californica*), an inimitable subject for the hottest wall-top, with blazing flowers of orange-scarlet, and *Plumbago larpentæ* with lovely flowers of cobalt-blue, and foliage that becomes suffused with many tints of crimson, red and purple, when backed by the hot wall-face.

SHRUBS FOR DRY-WALLS

The question of incorporating plants of shrubby or tree-like growth in dry-walls is one that must be examined with care from several aspects. In themselves they present every feature of plant beauty that is desirable, but it is their nature to overpower and dwarf everything less robust than themselves. As a general rule Conifers are inadmissible unless they are of true pigmy type; even then they are only appropriate to walls of a semi-wild character, when the wall garden is conceived on large and broad lines; in this direction trees or shrubs showing distinct variegation should be

avoided, preference being given to those having grey or green coloured foliage. Flowering shrubs are much more desirable and may enjoy greater representation, especially in any wall garden scheme where boldness is desirable and a definite degree of wildness can be tolerated. Like those of coniferous nature, however, it is imperative to point out the exhaustion engendered by their roots, and also, when allowed to attain some size, many of them project a considerable distance from the wall-face. This prevents moisture falling on plants below. The roots also contribute to the arid conditions, so that it is evident that plants of finer growth have little chance in their near neighbourhood. In a dry-wall devoted to the better class of Alpines it is much wiser to limit plants of this character, confining them to the wall-top, while even here they ought not to overhang to the disadvantage of what comes below, although an occasional specimen or group of the more refined shrubs may have a place in the wall-face. Shrubs like *Olearia stellulata* and *Spiræa arguta*, that often make specimens four and five feet high in ordinary shrubberies, can be converted into ideal pigmy stature in the wall garden. My practice with these is to cut them down to from six to nine inches from the ground as soon as flowering is finished ; fresh growth springs from many buds, and compact bushy examples result, some fifteen to eighteen inches high, and they are quite in keeping with the character of the wall-garden. Sometimes this *Olearia* dies after it has

attained some age, but as it roots quickly from cuttings taken in autumn, its reintroduction into the wall is quite an easy matter. The flowering characteristic of shrubs has been kept prominently in view in the selection that follows, while only plants that are naturally of slow growth or have this forced upon them under dry-wall conditions have been included. Apart from the flowers, the wall gardener will bear in mind that the foliage effect is a strong feature with some shrubs. *Cotoneaster congesta* is a case in point. It gives admirable contrast at all seasons with light greens or grey coloured leaves ; then in winter its own foliage takes on warm tints of purple-red that simply glow with colour under sunlight, while the branches take the impression of the surface with which they come in contact. On a commodious rock garden in good soil this beautiful evergreen will often make mounds covering as much as ten square yards, but in the dry-wall it grows much slower, and may not cover ten feet in a like number of years. Then again, shrubs that become unruly can always be restrained by the judicious use of the knife, flowering kinds having attention as soon as the flowers fade, while in the case of *Santolina* that is grown chiefly for its foliage effect, and spreads in billowy masses, several yards in width when unrestrained, by cutting close back in early spring it forms compact silvery balls, and may be so kept for years.

SELECTION OF SHRUBS FOR DRY-WALLS.

	Characteristics.	Colour.	Habit of Growth.	Season.
<i>Berberis Stenophylla</i> Irwinii	arched evergreen sprays	orange yellow	bushy . . .	May
<i>Cistus</i> , in variety . . .	dense, evergreen . . .	various . . .	" . . .	summer
<i>Cotoneaster congesta</i> . . .	box leaved, autumn tints	white . . .	} prostrate shrubs that take the impression of the surface over which they travel	
" <i>adpressa</i> . . .	autumn tints, deciduous	" . . .		
" <i>rupestris</i> . . .	evergreen . . .	" . . .		
<i>Coroëa Cotoneaster</i> . . .	interlaced branches; leaves hoary	yellow . . .	erect, twisted	May
<i>Convolvulus Cneorum</i> . . .	silver leaved . . .	flesh pink	erect . . .	summer
<i>Cytisus Ardoini</i> . . .	miniature broom	yellow . . .	tufted . . .	April, May
" <i>Beani</i> . . .	smaller than <i>Kewensis</i>	" . . .	prostrate	May
" <i>decumbens</i> . . .	downy leaves	" . . .	spreads flat	May, June
" <i>kewensis</i> . . .	slender branched	creamy . . .	low, bushy	May
" <i>schipkaensis</i> . . .	evergreen . . .	white . . .	bushy . . .	June, July
<i>Daphne Blagayana</i> . . .	spreading; cool peat	creamy white	spreads flat	April, May
" <i>Cneorum</i> . . .	Garland flower	waxy pink	bushy . . .	May, June
" <i>Fioniana</i> . . .	rounded evergreen	pale rose	erect, bushy	" "
<i>Erica carnea</i> . . .	winter heath	pink . . .	bushy tufts	late winter
" <i>mediterranea hybrida</i>	spring heath	pink . . .	" "	early spring
" <i>vulgaris</i> fl. pl. . .	double ling	rose-pink	bushy . . .	July, August
<i>Gaultheria nummularioides</i>	hairy leaves and stems	white bells	prostrate	spring
<i>Genista pilosa</i> . . .	tiny broom	yellow . . .	" "	May
" <i>radiata</i> . . .	needle branches	" . . .	bushy	" "
" <i>tinctoria</i> fl. pl. . .	double Dyer's green weed	" . . .	" "	July, August
<i>Helianthemum algarvense</i>	dwarf-compact . . .	yellow, dark eye	small bush	early summer
" <i>alysioides</i> . . .	leaves grey-green	yellow	" "	" "
" <i>formosum</i> . . .	slender, grey green	yellow, dark eye	medium "	summer
" " unicolor	" "	yellow . . .	" "	" "

	Characteristics.	Colour.	Habit of Growth.	Season.
Helianthemum				
rosmarinifolium .	narrow leaves, downy .	white .	bushy .	summer
" vulgare, in var. .	floriferous, vigorous .	various .	rounded bushes	summer
Hypericum Kalmianum .	slender leaved .	yellow .	erect .	June
Hyssopus officinale .	sweet smelling Hyssop .	blue .	"	July
Lavendula, dwarf varieties .	silver-grey leaves .	"	erect, bushy .	June, Sept.
Muchlenbeckia complexa .	tangled masses .	greenish .	wiry, bony stems	summer
" nana .	miniature, only three inches	"	creeping .	"
Olearia stellulata .	grey-green foliage .	white .	erect .	June, July
Ononis rotundifolia .	pretty trefoil leaves .	pink .	erect, bushy .	May, June
Rosmarinus prostrata .	evergreen, perfumed .	pale blue	creeping .	"
Salix reticulata .	crinkled leaves .	catkins .	prostrate .	spring
Santolina chamæcyparissus .	silver-grey, scented .	yellow .	bushy, spreading	June
Spiræa bullata .	wrinkled leaves .	red .	tiny, erect .	May, June
Veronica cupressoides .	Cypress-like .	lilac .	erect .	summer
" loganoides .	Heath-like .	white .	semi-erect .	"
" lycopodoides .	golden green club moss .	white .	erect .	"
CONIFERS.				
Juniperus hibernica compressa .	compact, conical .	. . . .	branches slender, erect	
" " prostrata .	a prostrate form .	. . . .	
" " procumbens .	Japanese, grey-leaved variety	. . . .	trailing	
Picea excelsa nana .	leaves grey-blue .	. . . .	choice, flat growing Savin	
" " pumila .	} miniature, .	. . . .	rounded, ball-like heads ;	
Pinus cembra pumila .	} Spruce Firs .	. . . .	"	"
" strobis nana .	dwarf Stone Pine .	. . . .	stunted miniatures like the	
	pigmy Weymouth Pine .	. . . .	} mountain types	

CHAPTER XIII

PAVED PATHS AND STEPS

WALL GARDENS are always most expressive where an alteration takes place in the level of the ground. In this way wall gardening becomes bound up with the question of garden steps and paved paths. In former years garden steps were generally of most formal character and were always considered apart from the practical side of gardening, their embellishment being entirely confined to plants of climbing habit, that were only admissible when lightly trained over the masonry. To-day all this is altered and garden steps have not only a distinct part to play in practical gardening, but it is becoming more common to find them conceived on lines that combine good taste in architecture, and at the same time give recognition to legitimate aspirations by way of enabling plants of alpine stature to find a roothold in their crevices and joints.

The most primitive type of garden step is that made from undressed timber, larch-poles being generally preferred, as they resist decay longest. The rustic character of this type associates most readily with

woodland features, but at best it can only be regarded as an inexpensive makeshift. In some respects, quite as simple as the former, yet capable of much greater expansion, is the garden step laid of brick. In the hands of an artist it lends itself to endless combinations, and yields almost as varied and charming results in the garden as can be attained with stone.

The simplest form of brick step (page 128) is that consisting of two courses of brick, one laid upon the other; the lower course is termed the "riser," and is bedded in mortar with the long narrow face outward, the joints between are not all filled with mortar, some being packed with good soil; behind this face the bricks are placed on the ground without a mortar bed, soil being filled in between, which answers the double purpose of fixing the bricks and also affords a root run for the plants. Upon this, the upper course, which forms the tread, is laid. The bricks may either be bedded flat (headers), or on edge with the narrow end exposed; the front line of brick is allowed to project one-and-a-half to two inches over the edge of the "risers," this gives greater character to the step and a definite amount of shadow results. The treads are laid in mortar, except an occasional joint immediately in front of the next "riser." These joints are filled with light soil, so that the plants that are introduced later find direct communication with the soil below the steps. Other courses are laid in a similar way.

One great disadvantage with plain steps of this

nature, and one that I find ladies in particular protest against, is that the tread and rise together give a depth of something like six-and-a-half inches, whereas garden steps to unite easy access with pleasure should never exceed four-and-a-half inches. This, however, is impossible with common brick, for the "riser" course must be given a bearing upon the back edge of the last tread, both to ensure stability and avoid subsidence later. Therefore a special thin brick is required to come any way near four-and-a-half inches. The difficulty can be overcome in another way, and a greater degree of artistic merit secured by building the "risers" out of red glazed pantiles (roofing-tiles) cut in two. These are little more than half an inch thick, and if bedded with the thinnest film of mortar between them, using two or more courses, so that with the brick tread, the full step does not exceed the height aimed at. Steps of this nature give delightful contrast, with a sense of importance that brick alone cannot convey (see illustration on page 72). Spaces for plants are arranged as before, as it is only necessary to place mortar in the front edge, the level behind being always brought up by bedding the brick in soil alone. Here again the tread is formed of brick laid in mortar, with some open joints, filled with soil, to take plants. The width of the tread is also important and should never be less than eighteen inches, although I should never hesitate to make them twenty-four inches where space admits. Wide, easy steps always convey a sense

of importance and distinction, whereas narrow, deep steps look mean and scrimped and are never pleasant to use. The soil used in bedding steps should be more than ordinarily gritty; plenty of crushed brick, mortar rubble and stone chips being used; and, if this is observed, then the fall of the treads should be behind, and with the exercise of ordinary care in securing connection between the treads and the soil below, water readily passes away. Failing this provision, a fall of half an inch will quickly shoot all water forward off the step.

Stone is the most generally useful material for informal steps in any scheme of wall-gardening, and no better material can be found than the rejected paving slabs that have already done service in public streets and thoroughfares. These can generally be had from the local builder at considerably less cost than new paving slabs. Stone slabs of this nature vary in thickness from two to four inches, the former being most useful, as the double layer of rise and tread with a mortar bed will give approximately the depth of step we require. The "riser" course may always be conveniently laid with the waste pieces, allowing spaces between them as before, into which soil and plants are introduced. The best and largest pieces are then used to form the treads, which are again allowed to project some two inches over the risers. A good bed of mortar is necessary to avoid cockling, but large fissures can be arranged in the joints and be filled with soil. No

regular arrangement should be attempted in making fissures in steps for plant growth ; indeed, the greater irregularity we can introduce the better will be the after effect. Generally the extreme sides and the line immediately beneath the front edge of the treads will offer the greatest opportunity for plants without appearing to intrude themselves. Only an occasional plant should appear in the forward part of the treads. When the extreme front edge of steps does not project beyond the line of the dry-wall, their introduction is comparatively simple, as they can be built in after the wall is finished, in this case the wall is simply returned at the corners and the building proceeds as described in an earlier chapter. Where the steps project in front of the wall face, it is then necessary to build up a low wall on either side of the steps. The sides are most effective if carried up in a series of ramps, or short platforms, leaving the top open, and this also holds good when we contemplate the use of cope-stones. This effect being readily secured with a narrow edging of stone bedded in mortar, the open top invites planting with some plant of bold outline, or of definite colour effect as *Nepeta*, *Santolina*, or *Rock Cistus* (pages 111, 128). The sides of these ramps conform to the rules already observed in building ; stones are laid and soil introduced with the object of growing plants.

With the question of steps decided, we now turn to consider the pathway. Here our only choice at times will be a path of gravel. This is undoubtedly the most

useful, because it is able to carry heavy traffic in all kinds of weather, while it provides firm, dry footing at all seasons. A stretch or alley of grass is always pleasant to the eye, and its springy, elastic tread is good to feel. Its practical use is, however, limited to a short season ; dew and rain in summer make it unpleasant under foot, while in winter it is wet, cold and uninviting.

A return to an old world idea that has gained considerably in public estimation during recent years, and now forms an attractive feature in many gardens, is the flagged or paved pathway. It always seems particularly appropriate when associated with wall-gardens, enabling us in this way to have access to our treasures at all seasons, irrespective of weather. In addition to its usefulness, the paved path has great beauty of its own, the low toned colour of the stone offers faultless harmony with coloured flowers, while it also may be made to carry its quota of plant life, and these springing from the grey slabs and meeting us in many quaint and unlooked-for ways, add the final touch to as fair a garden picture as we need conceive.

York pavement slabs form the best material for pathways. When new, the edges are sharp and well defined, so that in any scheme demanding strict attention to formal lines, this material has advantages over all others. It is also a splendid stone to wear and weather, and it readily cuts up into smaller sizes. Expense is its chief drawback in gardens, unless one is fortunate

to reside near the quarries. An excellent substitute is the rejected paving slabs previously noted for step building. This is ideal for flagstone paths of informal character. The straight-edge parts can be used to form the outside line where a fairly sharp edge is required, while all the waste pieces can be used in the centre. This haphazard fitting together of irregular shapes is known as "crazy" or "rustic" paving.

Paving brick and floor-tiles may also be noted as serviceable material for paths, the former being sometimes used by themselves when the bricks are laid on edge. They are most effective, however, when used on wide platforms or terraces, in panel form, with a surround of stone, this giving contrast to the colour. If laid in herring-bone fashion the contrast is accentuated (page 88). Round cobbles or pebbles are much in evidence in certain districts, and are sometimes used to form paths, but the irregular surface is most unpleasant to walk upon. Generally such should be avoided where there is much traffic, although a quaint effect is produced by laying them in front of some old-world garden feature, as a trough or dipping-well. In laying a pathway with any of these materials, the ground to receive them should be made fairly level, with a layer of sifted ashes, fine soil, sand, or mortar, to form a bed upon which each stone is laid. Mortar has distinct advantages, in that it binds the stones and prevents them cockling. The edges of each stone may come close up to its neighbour, except at irregular



FUNKIA SIEBOLDIANA IN AN ANGLE OF THE WALL.



ROUGH STONE STEPS FORMED OF SINGLE STONES IN CONNECTION
WITH DRY-WALLING

PLATE XXX.



YUCCAS AND FUNKIAS WHERE THE DRY-WALL MEETS THE PATH.

intervals, where a plant can be introduced to advantage. In stone pathways no mortar should be used between the joints unless the stone is small. Even when brick or thin tiles are used some fine soil should be worked between them, confining the mortar to the actual bed on which the lower edge rests. When mortar is used to any extent in step-building or pavement laying, the whole work must be gone over a few days after its completion and joints and crevices cleared of any mortar that has been forced outward, and that can safely be dispensed with. Soil is substituted in its place and planting takes place at the first favourable opportunity.

Whatever material is used to form a pathway, it is imperative that the surface be left quite level. Stones that cockle or have edges raised above their neighbours form traps for the unwary, and instead of being able to travel with pleasure, one has the uncomfortable feeling of being liable to stumble at any moment.

A good form of paved path, when stone is small and brick abundant, is to form an edge of brick on either side, filling in the centre with stone laid in mortar. Here and there a joint is filled with soil and a plant is introduced. A walk of this kind may be quite narrow or extend to any width, being neither difficult nor expensive to put down. Exception may be taken to the straight edges, but these are easily softened by planting at irregular intervals close up to the edge. On the other hand such a path is simply dealt with

when in front of a border, as then the occupants can grow right over and entirely hide the edge.

When the dry-wall is carried through the wilderness or wild garden, it may be more convenient to arrange a stepping-stone path (page 62). This is formed either with single stone of irregular size, or several small pieces are put together on a mortar bed, and arranged so as to give an almost connected path. Here, where the presence of Nature is strongly developed, free from our restraint, it were better to include only native plants in the pathway, in preference to attempting anything too ambitious with exotics.

The opportunities presented in the paved path for close association of plant and stone is one of the greatest delights in this form of gardening. One must remember that the primary object of such a path is to give access to the garden. Hence, only creeping plants should occur in the centre, and preferably those that will stand treading without damage. Plants of more erect habit, but only small kinds, are confined to the outer part. They ought not to occur where we come into contact with them in passing, while they are wet. In furnishing steps and paved paths, I find the greatest success follows the use of seed or tiny rooted cuttings, or pieces obtained by division, provided they have a few roots attached. These, if dibbled in between the joints and not allowed to dry out before progress is apparent, become established in a few weeks and in some instances the effect is really good the first season,

while the following year the paved path, steps and dry-wall have begun to tone down with age, finding expression in bolder masses and greater wealth of blossom.

The following list of plants includes those most suitable for paved paths and steps. All are quite flat when not in flower :—

- | | |
|--|---|
| * <i>Achillea umbellata</i> ; <i>rupestris</i> . | * <i>Dryas octopetala</i> . |
| <i>Acæna microphylla</i> ; <i>Buchanani</i> . | * <i>Gypsophila prostrata</i> ; <i>repens</i> . |
| * <i>Antennaria dioica</i> ; <i>tomentosa</i> . | <i>Muchlenbeckia nana</i> . |
| * <i>Arenaria balearica</i> ; <i>cæspitosa</i> . | * <i>Mentha requieni</i> . |
| * <i>Alyssum alpestre</i> ; <i>montanum</i> . | * <i>Saxifraga cæspitosa</i> ; <i>musciodes</i> . |
| <i>Cerastium alpina</i> . | * <i>Thymus serpyllum</i> , all varieties. |
| * <i>Dianthus arenarius</i> ; <i>deltoides</i> ; | * <i>Veronica prostrata</i> ; <i>repens</i> . |
| <i>graniticus</i> . | <i>Paronychia capitata</i> . |

The following plants are for positions where they are not likely to be trodden upon. None exceed six inches in height :—

- | | |
|---|---|
| * <i>Anthyllis montana</i> . | * <i>Papaver alpinum</i> . |
| * <i>Artemisia pedemontana</i> . | <i>Phlox subulata</i> , in variety. |
| * <i>Campanula pusilla</i> ; <i>pulloides</i> ; | * <i>Saxifraga aizoon</i> , in variety. |
| G. F. Wilson. | <i>Saxifraga apiculata</i> . |
| * <i>Dianthus caesius</i> . | * <i>Tunica Saxifraga</i> . |
| * <i>Draba aizoides</i> ; <i>dedeana</i> . | * <i>Veronica Bidwilli</i> . |
| * <i>Erinus alpinus</i> , and its varieties. | * <i>Viola gracilis</i> . |
| * <i>Gypsophila cerastioides</i> . | † <i>Ionopsidium acaule</i> . |
| * <i>Hutchinsia alpina</i> . | † <i>Linaria alpina</i> . |
| <i>Mazus pumilio</i> ; <i>rugosus</i> . | † <i>Saxifraga cymbalaria</i> . |
| * <i>Morisia hypogæa</i> , in pure sand. | † <i>Sedum cœruleum</i> . |

* Indicates plants that may be raised from seed as described on pages 96-104.

† Indicates annuals that are introduced by seed, and flower the same season.

CHAPTER XIV

DRY-WALL TERRACE GARDENS

THE decorative effects that we are able to secure with walls, whether of the ordinary masonry kind or built on dry-wall principles, is probably nowhere seen to greater advantage than where house and garden are placed on sharply sloping land, as on some steep hill-side. In this case it may extend to a series of terraces, as it would be quite impracticable and wholly undesirable to take up all the fall into one terrace. More frequently, however, the steepness of the ground is not so pronounced ; indeed, if gently undulated, the slopes will only extend to parts and here a single terrace, and then probably quite a low wall may take up what little gradient the ground shows. The last-named example, with many modifications, is quite in keeping with the general conditions and scale of numbers of delightful country houses of quite modest extent that are thickly dotted about in many pleasant parts of the country, the Home Counties alone contain a distinguished and important number. In these instances the site naturally suggests and favours the use of terracing, and this immediately conjures up the many

delightful garden scenes and pictures made possible by the combination of masonry and dry-wall when accorded sympathetic treatment in the hands of those who love to see flowers well grown and effectively displayed. The alternative would be to accept the natural fall and work the paths out over an extended area so as to secure easy gradients. This would almost invariably give steep banks, and the former practice here was to grass these down, or else introduce banks of roses. The former are difficult to cut and keep in order, and not particularly attractive at any season. The latter are much more decorative, but these again, if repeated indefinitely, soon exhaust their capacity for pictorial effect. One of the first results that follow the terracing of sloping ground is that it enables paths or walks to be laid almost, if not quite, level, while to gain access to the higher ground entails the use of steps, and their inclusion along with the other features already noted increases the opportunities for plant grouping that may be varied to as great an extent as the subjects we press into service. In this way one may have at times deep walls of solid masonry against which are trained woody subjects, such as require support, or perhaps are too tender in the open to succeed without such protection. Then if the wall is buttressed, it may have some good evergreen shrubs trained close to the face of these, or failing these supports, then the plants, taking the place of the buttresses, may be allowed to extend some distance

from the face and so form projecting ramps that break the otherwise too severe stiffness or straight lines of the wall-face. By this means we impart a degree of character to the wall that otherwise would be absent where an entirely flat treatment was observed throughout. In addition to this, when the plants reach above the wall-top they should not be too severely restrained, as a certain amount of waywardness here will often be more pleasing than our efforts after studied effect. Then, whenever the wall enters our vision during summer the presence of this half-restrained growth will appear much in the nature of a crown along the wall-top. We have already seen how this idea is expressed in the dry-wall, giving a riot of bushy and other plants along the wall-top. This unity of purpose is all to the good when gardening with hardy flowers. It may not readily suggest itself to any but discerning minds, because the final expression is rarely, if ever, repeated in the same garden. Hence the dissimilarity between any two gardens is exceedingly great.

The method of arranging the wall-foot as applied to quite low walls has already been dwelt upon, where the flagstone pathway was suggested as coming within easy distance of the wall, with no regular or formal border in front; in the case of deep walls, however, some modification is desirable and frequently necessary. Here one may with advantage introduce borders of varying width and plant them either to anticipate or supplement the floral tribute offered by the wall. A

suggestion for spring display would be to group on the most informal lines such plants as Primrose and Polyanthus, Tulip, Daffodil and Forget-me-nots, Scillas, Ferns and Anemone, and kindred subjects, not overlooking *Fritillaria imperialis* on account of being taller than the others. Another pleasing suggestion I have seen carried out was to plant all the space in front of the wall with the dwarf form of Lavender, the variety with the dark blue flowers. The plants were placed at varying distances apart and amongst them were introduced informal colonies of Daffodils and Darwin Tulips, a severely flat surface being avoided by introducing a few groups of tall Lavender that were allowed to attain tree-like dimensions. The first suggestion might be extended to include only plants with some grey-green tone in the leaves. *Nepeta*, Lavender and *Santolina* would here be augmented by *Funkias*, *Stachys*, *Teucrium chamaedrys*, and *betonicum*, *Phlomis fruticosa*, and also groups of distinct plants like *Anemone Japonica*, *Iris gigantea*, *Veratrum nigrum*, and *Eryngiums*; possibly *Romneya Coulteri* could have a commanding position, while the well-known Rosemary would not be overlooked. A sheltered border at any wall-foot would also offer opportunity to grow half-hardy bulbous plants like *Crinums*, *Powellii* in its various forms, also the new *Montbretias*, like *Comus*, *George Davidson*, and *Lady Hamilton*, while a plant of similar nature that flowers in late autumn is *Antholyza crocosmæflora*, and

Galtonia (*Hyacinthus*) *candicans* may also be noted. Arranged in substantial groups with the addition of some of the more refined of the hybrid *Kniphofias* and with a wide margin of dwarf Lavender, straight where the front edge meets the path, but presenting a broken face against the border, and with a bold group of Tree Lavender, Rosemary and *Phlomis* to extend the interest and variety, an extended season would result and the border lend distinction to a part of the garden, differing in many respects from what we meet elsewhere.

Occasionally we are met with the problem, where higher ground projects as a tongue and bisects two walks, or where some retaining walls start from or end abruptly in the path. Some bolder treatment is here desirable and few plants give better results when given a commanding position than the various kinds of *Yucca*. For the first named position *Yucca gloriosa* or *recurvifolia* would probably be most effective, especially once they had attained some age to develop their tree-like character. The latter condition would as readily be met by the forms *filamentosa* and *flaccida*, as seen in the illustration on page 129. The flowers here are an additional attraction, and are generally freely produced after the plants have been established a season.



[Photo]

CAMPANULA PORTENSCHLAGIANA. (*Syn muralis*).
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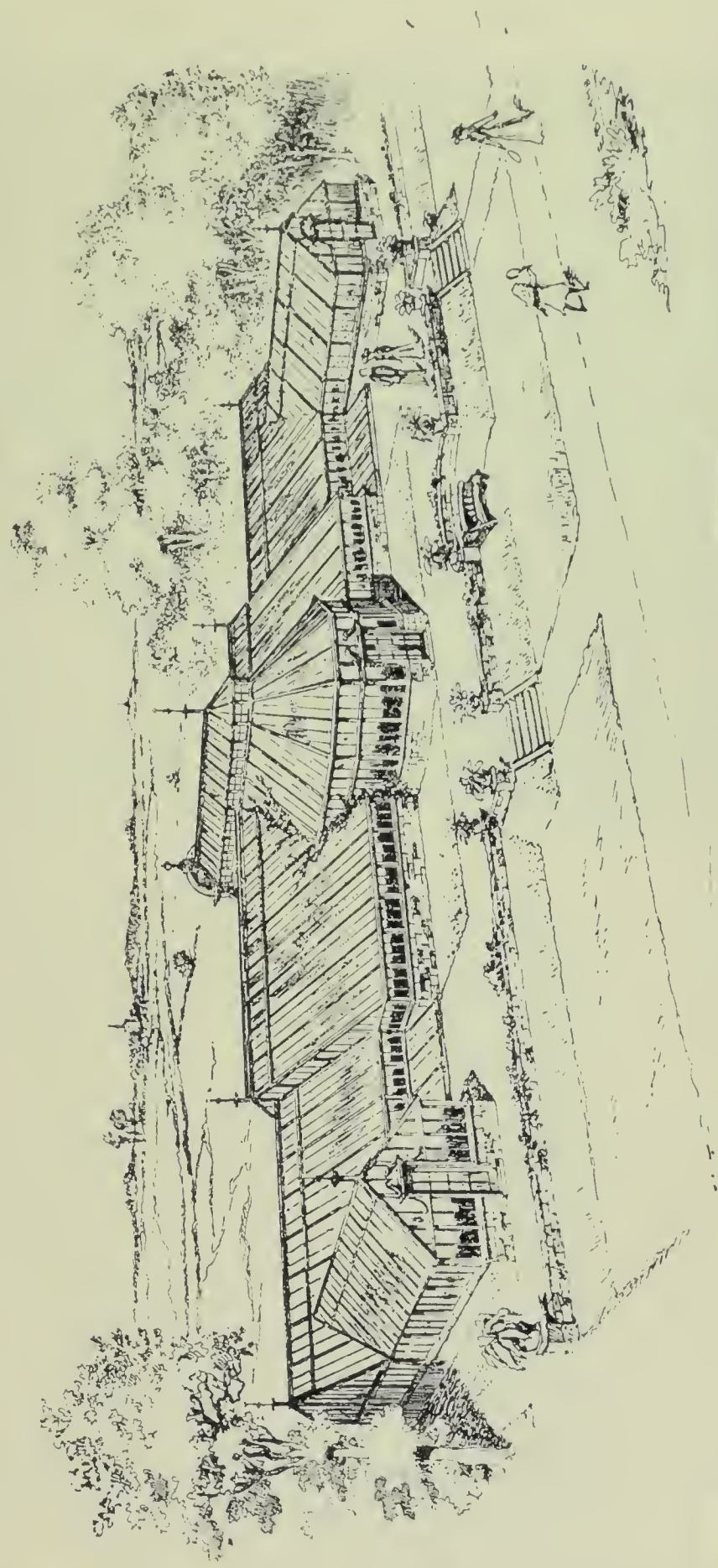
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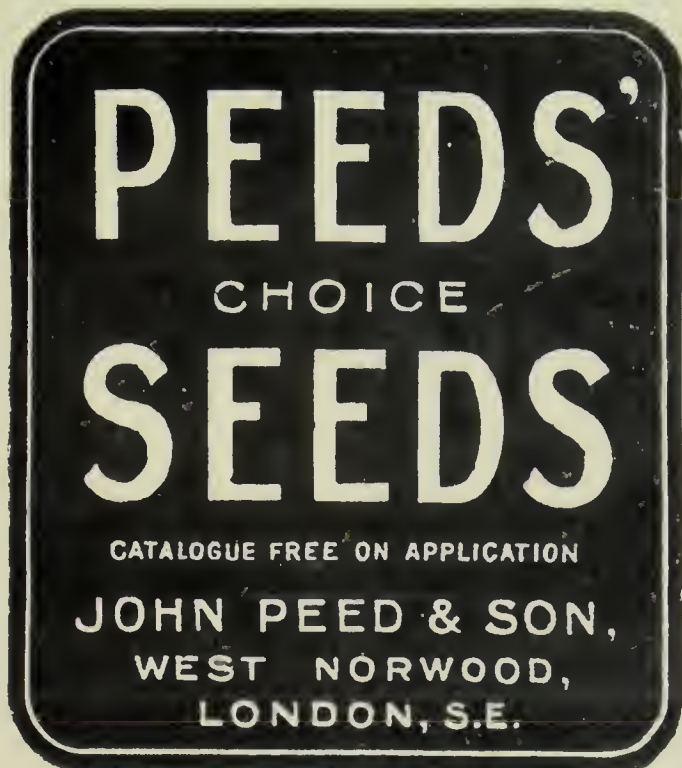
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